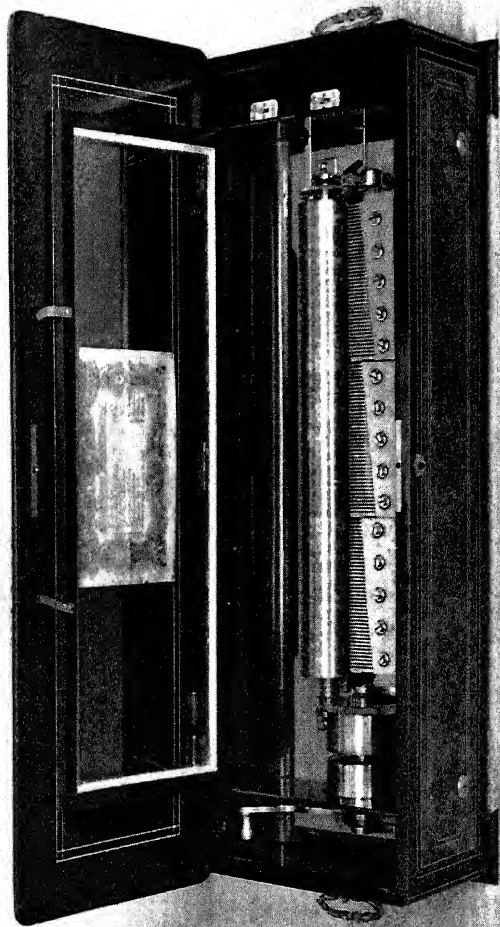


MUSICAL BOXES



Good-class musical box, "Sublime Harmonie." Three combs, with a total of 127 teeth. Eight airs. Cylinders $18\frac{1}{4}$ ins. long. Maker: Paillard.

Louis Martineau Collection

Musical Boxes

BY

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Introduction

ALTHOUGH NOT by any means the earliest form of mechanical or automatic music, it is safe to say that the musical box was, in its day and generation, the most popular, perhaps because of the ease with which it could be manipulated, or its portability and comparative low price. Whatever the reason, the musical box continued in great favour in England, at any rate over a period of about 100 years, from 1810 to 1910.

The makers were careful to study public taste in the countries to which musical boxes were exported, and, as these instruments became cheaper, they were manufactured in tens of thousands, and thus were to be found in nearly every home of rich and poor people alike.

Before the advent of Edison's phonograph the musical box was the only form of automatic music available to all, and it certainly catered for every taste, if we are to judge from some of the programmes. The early ones played operatic selections almost exclusively. Later—1840-50—came patriotic songs and popular ballads and folk songs of the period. It was possible to obtain quite elaborate musical boxes, playing six or eight Scotch airs, and more expensive ones playing overtures (usually three or four, but sometimes six). In the 1850-80 period a programme of six or eight waltzes seems to have been very popular, and at a later period we get programmes of music-hall songs, but these were almost exclusively the cheaper type of instrument.

The improvement of the gramophone started about 1910, and at about this time we also had the first of the player-pianos and piano-players; and so, gradually at first, but very surely, the musical box as a musical instrument faded out of public favour, and was to be replaced by something different, the newer form of automatic music which, in the years to follow, made great strides in the direction of improvement, and so on to the days of the radio and "talkie" picture and canned music, as it is now called.

All this has had the effect of putting the musical box in the antique category, and we now find some enthusiasts collecting them more as antiques than as musical instruments. Of course, there have always been collectors of musical boxes from the earliest days, but they have usually been in a small way. A man would have as many as he could afford, or had the space for, solely because the music pleased him, and usually for no other reason. To-day we have connoisseurs who are sometimes more interested in the period than in the actual music. Many of the enthusiasts collect only the larger type with elaborate inlaid cases, others specialise in overture boxes. The purely elaborate collector, without regard for the music, is the collector of musical watches and fob seals in gold or silver. Then there are collectors of musical snuff-boxes. The actual cases were never intended to contain snuff, although some have a small space for it. The cases are usually of horn, though some of the early ones are of fine amber tortoiseshell; there are also some in gold and silver cases, the former sometimes inlaid with jewels and the latter at times elaborately enamelled. Some of these musical snuff-boxes have some finely made musical movements, and a few of the gold cases also contain a small mechanical singing bird in addition to the musical movement.

Alas! these elaborate and expensive snuff-boxes are only for the wealthy collector. Few of the gold ones were made, and they are scarce to-day. Both box and movements were hand-made and not mass-produced in factories. Silver snuff-boxes to contain the small movements were made in Birmingham in 1790, but most of the silver and gold cases were made in France and Switzerland.

CHAPTER I

History

WITHOUT DOUBT, the first makers of musical box movements were watchmakers ; therefore, the first musical movement—that is a tuned steel comb played upon by pins or pegs set in a cylinder or disc—was contained in a watch. The country of origin was Switzerland, and it was here that the industry developed and improved. In after years, actually in 1839, musical movements were being made in Saint Suzanne, France, by one Auguste Lepee, a Swiss, and soon after this date musical movements were made also in Paris. Later still they were made in Germany. As to the date of the earliest of these little movements, it has been said that the first maker of a musical movement was one Louis Favre, in Geneva, some time early in the eighteenth century.

L. G. Jaccard, writing in the American magazine *Hobbies*, in 1938, maintains that Solomon Favre was the first man in Geneva to make musical watches, and that by 1750 there were several watchmakers in Switzerland making musical watches ; also that in St. Croix, a large village in the Jura, repeater watches were made as early as 1752, and the craftsmen engaged in this business were in touch with the leaders of the industry in Geneva. According to Jaccard, the craftsmen engaged in making musical movements came originally from the Vallée de Joux, Switzerland, near the border of France. As may have been expected in a new and promising industry, any developments were accomplished more or less secretly, and for this reason it is most difficult to trace the early developments in the musical box trade. It was soon discovered that the Vallée de Joux lacked the necessary facilities for export of these goods, and Geneva eventually became the manufacturing centre.

Baillie and Chapuis in their *Le Monde des Automates, Paris*, 1929, say : "Comb music in truth lent itself to an easy adaptation. It was not indispensable that the blades should be arranged parallel

(they are writing of musical watches), they were also placed following converging rays like a fan. In the latter case, the most frequent, the roll was replaced by a disc pointed upon its two surfaces. Another arrangement was also used in articles of small volume—seals, certain rings and medallions—for airs composed of very few notes, a scale at most. The “roll” reduced to its smallest dimension was this time the “barrelet” of the music, a box containing the motor spring, this latter, carrying its own mechanism, was launched by the repeater, but one could also make it play at will. Musical mechanism became practical for watches only with the invention of the comb, the series of steel reeds used in all musical boxes. Its invention is not known with any certainty, but the earliest use of a comb known is in a clock made by Antide Janvier in 1776.”

At first, the small musical movements were called “carillons à musique.” They were of very simple construction, the comb usually having fifteen to twenty-five teeth tuned to scale, each tooth was screwed into position separately, and they were played upon by steel pins set in a brass disc. Only very simple tunes could be played. The watch-spring was also the driving power for the musical movement. The escapement was merely a naked pinion, which was noisy and irregular at best. Some of the earlier watches had a separate spring and a separate train of wheels.

By 1815 the industry had so far developed and the movements improved upon that expert workmen were required in their own particular craft ; thus we find a number of expert workers with one Pierrot as their leader migrating from their villages and settling in Geneva. Here they at once began manufacturing musical movements exclusively.

It was natural that these craftsmen should soon have rivals and imitators, such as Henri Capt, the brother Longchamps, Moise Aubert, names that in due course all became famous in the musical box industry. All these men were from “Le Lieu” Vallée de Joux. Pierre Rochat, with his son from “Chez Meylan,” also of the Vallée de Joux, left their villages and began manufacturing in the city. At a slightly earlier date, 1811, Abram Louis Cuendet, after secret consultation with the Lecoultre brothers, implanted a similar industry—the exclusive manufacture of musical movements—in St. Croix. A. L. Cuendet

was shortly afterwards joined by Henri Jaccard. All the above-mentioned craftsmen had been watchmakers of repute.

In 1812 Jeremie Recordon of St. Croix began manufacturing musical movements, and, although he did not flourish at first, he was joined in 1815 by Samuel Junod, who had been employed by Messrs. Nicole Frères of Geneva, his father Isaac Junod (known as Branet) and Epars. These men are said to be the actual founders of the musical box industry in St. Croix, and had for a time the monopoly of the production of these little movements. They began placing the movements in fancy articles, *objets d'art*, such as watches, seals, walking-stick tops, small bottles, bonbonnières, jewel-cases and snuff-boxes. These products became world-famous, and the snuff-boxes remained in great demand over a period of years.

L. G. Jaccard says that as early as 1780 musical watches were being made in Geneva that could play two airs. At about the same date—the exact date is uncertain—David Lecoultre put in a brass cylinder to replace the disc, the cylinder being set parallel to the comb. This was the pioneer of the brass cylinder musical movement, and permitted of the enlargement of the whole machine, and so transformed the primitive *moutre à carillon* into an instrument of greater exactitude and altogether larger compass.

With this improvement came the laminated comb in later years, when the movements were larger and mounted in more elaborate cases. Laminated combs are different from those in the early watches. The steel prongs or teeth of the comb were no longer mounted singly, but made in groups of three, four and five. Each batch or group was screwed on a brass block or bedplate. Jaccard thinks the credit for these improvements is due to David Lecoultre of Geneva. The Lecoultre brothers became established in Geneva before 1810, and had become directors of a factory producing good quality watches, and later musical boxes, both in watches and other articles. In Geneva and St. Croix the musical box industry began to prosper, and more and more craftsmen were engaged in the new business, and improvements appeared. From about 1820 the combs were cut from a single steel plate; a few laminated combs however continued to be made for a while. Bordier was using one-piece combs in his small two and three air movements in 1830. Between the years 1820 and 1825 dampers were introduced. These were tiny feather quills fixed to the underside of the points of the

bass notes of the comb with shellac. The dampering of the combs was a great improvement to the sound, as it prevented a note chattering or grunting if struck by a pin before the tooth had ceased to vibrate. Steel dampers were used on the more expensive small movements made in Geneva by Capt and Bordier, etc. When the larger movements were made in 1833, steel dampers were used; these were thin flat steel wires, and were pinned to a lug cast on to the tooth of the comb; all except the high short notes had dampers—about two-thirds of the comb. For the high notes feather quills were used.

After 1810, by which time the industry was properly launched, the movements that were made separately—not in watches—all had cast brass bedplates and spring cases, and a train of three wheels. The aim of the manufacturers was to produce the movements with less labour, and therefore cheaper. Later, in order to still further reduce the cost of production, the bedplates and spring cases were stamped. From 1810 onwards the escapement was an endless screw, which replaced the primitive and unsatisfactory naked pinion. The endless screw escapement ensured smooth running, and was (and still is) an altogether ideal escapement for a musical box. It is used to-day in all makes of clockwork-driven gramophones, and in some makes of electric clocks. A coarse type of endless screw had been in use for many years before the introduction of musical boxes. Large clockwork and weight-driven machines, such as the early meat jacks seen at Hampton Court and elsewhere, had an endless screw escapement, as also had some of the early German automatic organs.

The manufacture of these small musical box movements progressed to a vast extent between the years 1820 and 1830, and they were being improved upon constantly. One important improvement was the introduction of resonators attached to the comb. Hitherto the small combs had always sounded tinny or metallic. The resonators—small lead weights—were fixed on the under-side of the bass notes, and indeed on all the long teeth, usually about two-thirds of the comb. The use of the resonator not only improved the volume of sound, but eliminated to a large extent the metallic ring that many of the small combs gave out. The introduction of these resonators gave a wonderful fillip to the production of musical boxes, and the best makers such as Bordier, Kapt, etc., made movements that were masterpieces of

the comb-makers' and comb-tuners' art ; the little cylinders were set up so as to make the best possible use of the combs.

Improvements in the construction of these little movements called for highly-skilled craftsmen, specialists in their own particular line, and thus separate men made different parts, piercers, pin-makers, comb-cutters, wheel-cutters and mounters, cylinder prickers and finishers, etc. It was the practice in the St. Croix district to employ outdoor workers, and these workers often had their own small workshops attached—as we know in fact they were—to their own homes, where the separate parts were made, jobs finished and afterwards assembled in a finishing shop.

The first musical box factory in St. Croix was not built until 1875. Even after that date many people continued to work in their own homes. This practice of course lowered the cost of production considerably, and the instruments could be sold cheaper, and thus more people were able to purchase them. Thus it is that St. Croix became the centre of the cheaper class of musical boxes. Although some better-class ones were at times produced there, their aim at this period was to produce a cheaper machine than was being made in Geneva. The small cylinders were marked or pricked by a musician in one house, and the holes to receive the pins were drilled usually by girls, in another house, and afterwards the actual pinning was done by girls (or at times by children) in the homes. The cylinder was afterwards sealed and shaved at yet another house.

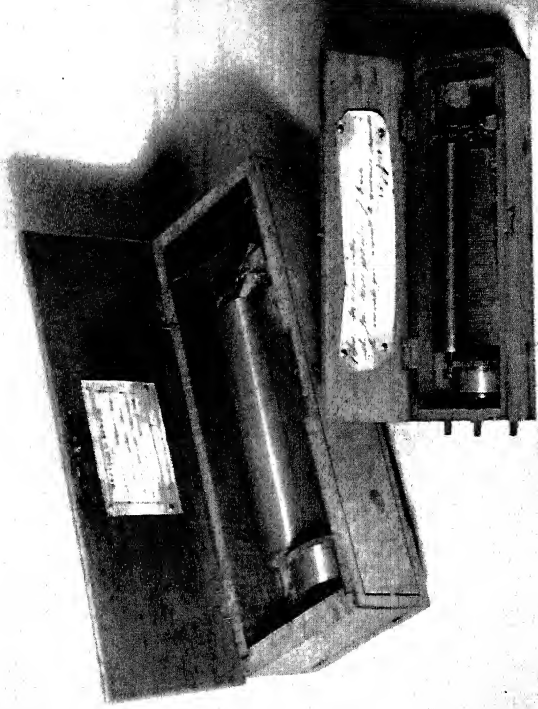
In St. Croix this outdoor worker system was in vogue for many years, and the trade or craft was passed from father to son. Remarkable as it may seem, it is nevertheless a fact that some of these outdoor workers never saw the finished movement. I believe the same conditions obtain to-day in St. Croix, with regard to the little movements produced by Messrs. Thorens.

Many fancy articles such as coloured tin boxes with a view printed on the lid, dolls, workboxes, jewel cases, etc., were produced, both in Switzerland and France. Competition was keen, as may be expected in any flourishing business. At first the French manufacturers of fancy articles would purchase the little movements from the Swiss ; this went on for some years, but in due course movements of good quality were made in Paris. In after years the French also made the larger type of musical box. The articles and toys containing the small movements seem to have been intended chiefly for the tourist in after years, and were

made in large numbers over a long period, and at all times seem to have commanded a ready sale. Very much the same conditions obtain to-day, except that the musical box movements are of a much cheaper quality, more or less mass-produced, and there are a larger variety of articles in which to fit them, but the demand seems just as keen.

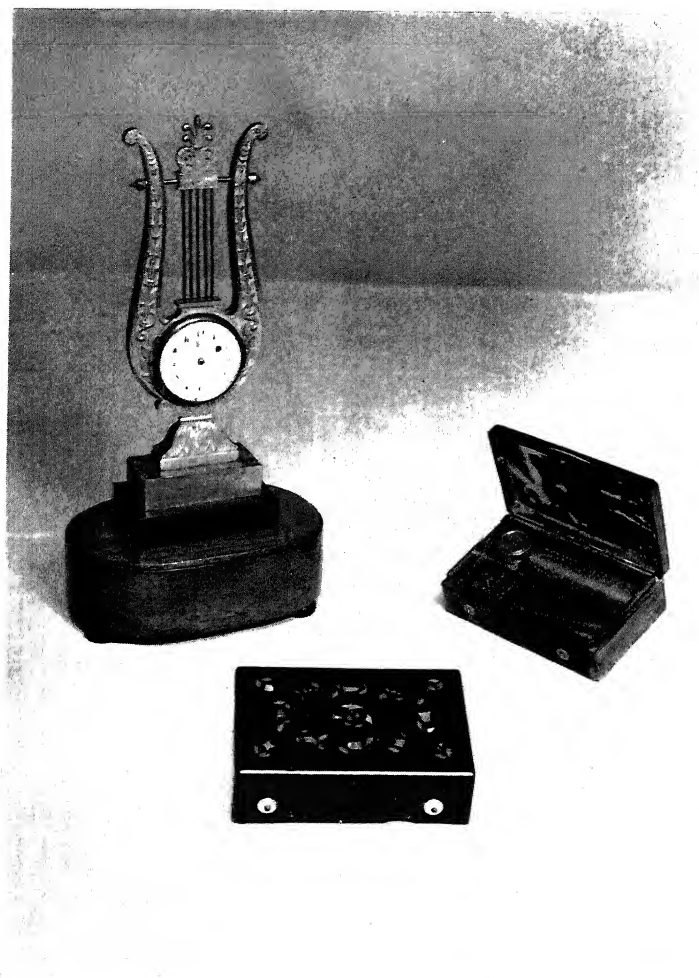
At about the 1835 period the small cheap toy musical box was made; this was the Manivelles or crank-handle type, turned by hand, the movements having neither spring nor escapement. In a few years these toys were to be found in nurseries all over the world; they were usually in round painted metal cases, and played one tune. Their modern prototypes are made and sold to-day, and are at times in plated metal cases or small wooden boxes about 4 inches by $2\frac{1}{2}$ inches by 2 inches, and play three or four tunes. It is worthy of note that throughout the craze for (and the popularity of) the larger and more expensive instruments, the market for the small movements never flagged, and they were made and sold, as I have said, over a long period, in fact down to the year 1914. Messrs. Paillard of St. Croix and other firms were still making them in large numbers. The reason may very well be that the tiny movements could be fitted into a large variety of fancy and saleable articles; moreover, being portable, they were much easier to carry about than the larger musical boxes. Also they were novel.

As an indication of the rapid progress made by the Swiss in the elaboration of the musical box, it may be mentioned that as early as 1840 the firm of Nicole-Frères of Geneva were making good-class musical boxes with cylinders eighteen to twenty-two inches long. The larger pattern musical box—the cartel—was first produced in Geneva in 1833, and soon afterwards at St. Croix. Conditions at Geneva were not quite the same as at St. Croix. Most of the people employed in the musical box industry in Geneva worked in factories, there were few outdoor workers. These conditions produced a certain standard of excellence, and the manufacturers endeavoured to maintain this standard over a period of years. Nevertheless, in the 1870-80 period a number of cheap machines were made in Geneva. It is not possible now to say precisely which firm in Geneva made the first of the larger type (cartel) musical box, but these more serviceable instruments soon found favour with the public, and the enterprising manufacturers lost no time in improving and



Two early and rare musical boxes. Larger one is by Nicole Frères, No. 39004; key wind; four airs. Cylinder is 8½ ins. by 2 ins. Comb has 113 teeth. Smaller musical box is by Du Commun-Girod, No. 5143; three airs. Cylinder is 6 ins. by 1½ ins. Comb has 93 teeth. Date is about 1830.

Louis Martineau Collection.



French lyre-shaped clock with musical box in the base.
Two musical snuff-boxes. The upper one is by Alibert, and is in
a tortoise-shell case. The other is in a horn case, inlaid with
mother-of-pearl.

David Martineau Collection.

perfecting them, and musical boxes began to be taken seriously. Hitherto they had been regarded as more or less elaborate toys.

Many embellishments were introduced between 1835 and 1845. The music produced by the small movements had to be limited to simple harmonies. Although, as I have stated, the makers made the very best use of the material at their disposal, the effects were nevertheless cramped. In a very short time (certainly before 1840) all this was changed, and large and deep-toned combs were used on some machines that were thus much more pretentious and practical as musical instruments than anything yet produced. The large combs, all tuned to chromatic scale, produced really good music.

In due course the fascination for these larger instruments spread to all parts of the civilised world. At first, the large movements were put into perfectly plain cases, but in a short time polished rosewood cases were produced. All these early large movements were of course key-wind, and the stop-start, change-repeat levers protruded through the side of the case. The first improvement was to put a hinged flap at the left-hand side of the case to enclose the control levers. In 1838 came inlaid cases (only the lid at first, but very fine workmanship); this made a vast improvement to the appearance of the case, and must have greatly increased the popularity of the musical box at a period, the early part of Queen Victoria's reign, when colourful furnishings were finding favour. It was some five years later that we had the inside glass lid, and with it came the ratchet winding, although key-wind machines still continued to be made for some years. At first the ratchet handle was under the glass lid; this necessitated opening the lid whenever the spring required winding.

Some time before 1850 the elaborate and expensive inlaid cases were produced; these cases were works of art in themselves, not only was the lid inlaid, but the front and sides of the case also, and sometimes the frame of the inside glass lid.

French competition was now being felt. Musical clocks had been produced in Paris, and some of them were now getting more elaborate and contained quite large movements, with cylinders eight and nine inches long, some of them even extending the whole width of the base of the clock case. They also made—chiefly in Paris—the smaller clocks, many of them with a musical movement separate in the case and not connected with the clock; this could be played at will by pushing a lever or

pulling a cord. During the Regency period in England many elaborate cases had been sent over from Paris, workboxes, jewel-cases, small writing-desks, etc.

Many novel and attractive cases were also produced by the Swiss. For the dressing table there were ring-stands in the form of miniature harps, inlaid with mother-of-pearl and enamelled ; standing on a base covered with mother-of-pearl, these harps were beautifully modelled in lacquered brass, although some were of gold. The base contained a small movement that would play two of Mozart's minuets composed for the harp. The whole thing was not more than four or five inches high. Also, there were elaborately carved high-back arm-chairs containing large eight-air movements. The music would start when the chair was sat in.

At the Great Exhibition in Hyde Park in 1851 there were exhibits by several of the Swiss manufacturers showing exquisite specimens of their workmanship, and many of the London firms took up agencies forthwith.

The firm of Messrs. T. Cox, Savory & Co., of Cornhill, watch and clock makers, issued a catalogue of musical boxes dated January, 1852. It would seem they stocked only the instruments made by Nicole Frères, and from a perusal of this catalogue we gather just how popular musical boxes were at this period. In a note at the end they say under the heading of *Sacred Music*: "In compliance with frequent application T. C. & Co. beg to say that they have recently introduced musical boxes playing sacred airs selected from the oratorios of the great masters of the art ; and submit those comprised in the following list as a novelty worthy of attention, all made by Messrs. Nicole Brothers of Geneva." This is followed by a list of eleven musical boxes, all described as playing four, six or eight sacred airs, and priced from £4 to £16 16s. However, they were not exactly a novelty. Good quality musical boxes playing sacred music had been made as early as 1845.

CHAPTER II

Improvements

SOON AFTER the first of the large type instruments were made, and certainly before 1840, the makers introduced various improvements, particularly in the way the comb was tuned. Already in 1830, the small movements had been made which produced a mandoline effect, the fine combs had eight or ten notes of the same pitch, and the mandoline effect was produced by repeating a dominant note a number of times. Mandoline combs were now made for the larger instruments, and at about the same time the two-comb or *forte-piano* musical box was introduced. This was first made by the firm of Nicole Frères of Geneva in 1840, and soon afterwards taken up by several other makers. The combination of the two combs had a very pleasing effect musically, they were set side-by-side, the longer one—the loud comb—was usually on the left, and had the lead resonators under two-thirds of its length. The short comb had small resonators or at times none at all. Thus, it will be understood the long comb played the loud passages while only soft notes were played by the short comb. The programme consisted of selections that were best-suited to a combination of loud and soft music. The firms of Nicole, Paillard and Baker-Troll made the best *piano-forte* musical boxes.

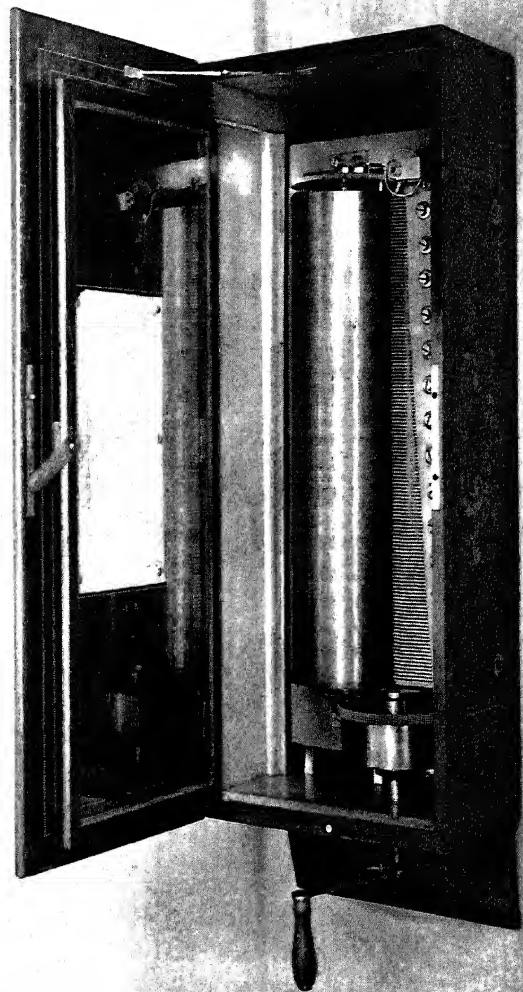
At a later date musical boxes were produced that had two complete combs of equal length as distinct from one comb being divided into two parts or one part being shorter than the other. Many of the long combs were made in two parts of equal length—the second half being merely a continuation of the first—but the combination of two complete combs of equal length was something new, and opened up further great possibilities in the way two such combs could be tuned. This combination of two complete combs was called *sublime harmony*,

and a large number of such musical boxes were made by various makers. It is said to be the invention of Amedee Paillard.

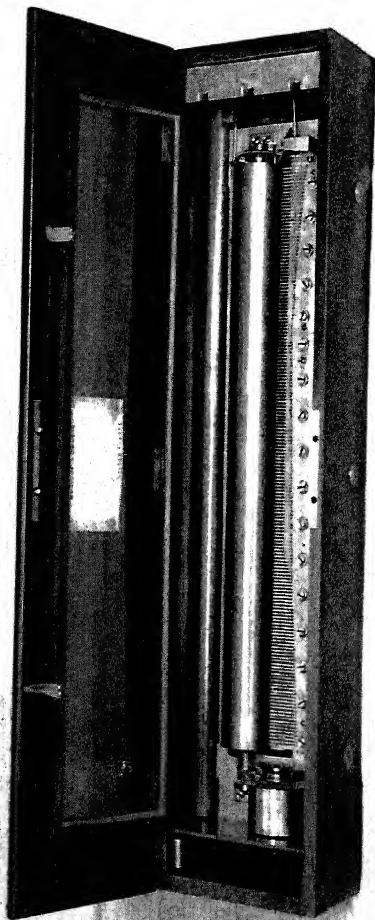
Elsewhere I give a list of makers who exhibited at the 1851 Exhibition in Hyde Park, London, and another list of those that exhibited at the 1862 Exhibition. The intervening ten years had seen still further improvements to the musical box ; chief among these was an elaborate instrument having interchangeable cylinders —this was a vast improvement indeed. Hitherto the worst that could be said against the musical box was that the repetition of the same tunes tended to become boring ; with interchangeable cylinders all this was eliminated, additional cylinders could now be purchased almost *ad lib.* For some years, however, the actual changing process was on these early machines rather primitive. The earliest I have seen was made by Ducommun Girod of Geneva, and was more or less in its experimental stage ; the date of this machine would be about 1854. In 1858 Mooline Senior, of Geneva, made a very elaborate interchange cylinder musical box playing overtures ; the changing, however, was still very unsatisfactory.

However, in the 1862 Exhibition, Messrs. Paillard of St. Croix were showing a very large and elaborate musical box with a greatly improved system for changing the cylinders. This was the largest and most ambitious musical box yet seen in this country. It had six interchangeable cylinders, and they were telescopic, so that they expanded while the tune was playing, and the cylinder revolved six times non-stop in playing one tune. The present writer has had this instrument through his hands. One cylinder had on it the complete overture to *The Barber of Seville*, another had Weber's *Invitation to the Waltz*. There were two combs of equal length, and the cylinders, when extended, were twenty inches long.

After the 1850 Exhibition competition became very keen among the various makers, and all kinds of further improvements appeared, some genuine improvements, others rather could be termed improvements of a doubtful character ; among these were musical boxes with drum and bell accompaniment. It is extremely unlikely that the strident beats of a drum could be an improvement or even a suitable accompaniment to the soft, mellow notes of a steel comb ; nevertheless these drum and bell boxes were afterwards made and sold in very large numbers. In the early ones the drum was of tin or brass, and was set out



Large 24-air musical box. Comb has 136 teeth. Cylinder is $19\frac{1}{4}$ ins. long by 5 ins. 8-air comb, 3 airs per revolution of the cylinder. Initials "L.B." on the escapement.
Louis Martineau Collection.



Forte-piano musical box by Nicole Frères, No. 385 47. Cylinder 22 ins. long. Long comb 123 teeth, short comb 49 teeth. A good-class musical box.

David Martineau Collection.

of sight, as were the bells under the movement, in fact the drum was screwed to the bottom of the case. The bells, six or more in number, were in a cluster, mounted on a little gantry, and were struck by little brass hammers.

About 1850 the Flutina or reed organ accompaniment was introduced, and later the musical box with drum and bells in view came into existence. The drum was now perfectly modelled, and usually four to six inches in diameter, it had a real parchment head and a brass wire "snare." The bells, from four to twelve in number, were separated and arranged more or less tastefully on either side of the drum. The drum and bells were gold or silver-plated, and the bells were at times elaborately chased.

Bremond, and some of the French makers—Thibouville—Lamy—continued to make the old type of drum-and-bell box for some years afterwards, although it is difficult to understand how a demand was created for such primitive accompaniments. It is only fair to state, however, that nearly all the better quality drum-and-bell accompaniment musical boxes gave quite a creditable performance if by a maker of repute, and if there were more than six bells. In these better quality instruments the bells were tuned to harmonise with the comb, and were intended to be a soft, mellow accompaniment, as in fact they were.

With the cheaper make of musical box the chief aim seemed to be to make as much noise as possible, and they were quite obviously intended for a class of the community that would appreciate clatter and noise before actual music. However, these monstrosities sold in very large numbers, and it would certainly seem that they were the forerunners of the modern jazz band, and so-called dance orchestra. These latter, however, have the advantage over the old-time musical box in that they are able to call to their aid a larger number of clattering instruments, musical and otherwise. It is not unusual, I believe, in our modern dance bands to use such unmusical things as old-time police rattles, sleigh-bells, peas in a can, whistles and horns, and even a wash-tub scrubbing board.

The reed organ or Flutina was another accompaniment to a musical box that was only really successful if of the best quality. Generally speaking, it may be termed a doubtful improvement. The brass reeds were usually seventeen in number in the cheaper instruments, but in some of the more expensive ones there were

thirty-six to forty organ notes. All the organ-accompaniment musical boxes were expensive and, if by such makers as Heller, Nicole or Langdorf, were quite passable as regards their musical quality. It was usual to have the organ notes arranged in the centre of the cylinder, and to have one comb on either side ; if these combs were long, that is to say, if the cylinder was eighteen to twenty inches long, then the music was generally quite good. Another arrangement was to have only one long comb, and the organ notes at one end of the comb, generally on the left-hand side. Not many of the organ-accompaniment musical boxes were pleasing as musical instruments, and only a few makers produced them. A few were made with all organ notes—without a comb—but were not popular, and not many collectors to-day are interested in them.

Between the years 1850 and 1870 the firms of Nicole and Lecoultré produced some of their finest work. Both firms were making boxes that played three and four overtures ; the largest of the Nicole make had cylinders 18-22 inches long and $4\frac{1}{2}$ -5 inches thick, two combs, and long playing movements ; these latter had two springs.

The manner of setting-up overtures on these large cylinders was a marvel of the arranger's and cylinder-pricker's art. Short overtures, such as Mozart's *Magic Flute* and Bellini's *Norma* were reproduced in their entirety, and were note perfect in every way. The close-cut three and four air combs that were made for the twenty to twenty-two inch cylinders had between 300 and 400 teeth, and thus every instrument in the orchestra was represented, and the passages faithfully rendered. By holding a thin cylinder of tissue paper lightly on portions of the comb in turn it is possible to recognise the scoring for each instrument ; cello, violin, double-bass and horns are easily distinguished, and a musician will acknowledge that the score is closely and exactly followed. Favourite overtures were Rossini's *The Barber of Seville*, *William Tell* and *Semiramide*, Meyerbeer's *Robert le Diable*, Bellini's *Norma* and I. Puritan and Auber's *Fra Diabolo*. As most of Rossini's overtures are in two distinct parts, it was only possible to get one part on a cylinder (except in the case of a not too popular type of musical box, in which the cylinder revolves twice for one overture), so in the case of *The Barber of Seville* the second part was played. In the case of *The Gazza Ladra*, at times the first part, but usually an abridgement of both

parts. *William Tell* was nearly always slightly abridged, as to the first part only, the second part—the galop—played in its entirety, even to the finale.

In 1875 Nicole produced musical boxes with four springs that would play for three hours with one winding. By 1880 there were thirty different firms in Switzerland making musical boxes. Most of these firms had London agents. Many new firms had sprung up during the previous ten years, notably Messrs. Dawkins and Baker-Troll.

At about this period Messrs. Paillard made a series of three-comb musical boxes. This was a great improvement, each comb was complete in itself, and the combs were all of equal length and were set side-by-side; some very pleasing effects were obtained, and the instruments were very popular, although rather expensive. Three-comb musical boxes were afterwards made by Nicole-Frères, and a series of them were produced in the interchangeable cylinder pattern, with twenty and twenty-two inch cylinders; they usually had long-running movements with two springs.

Later still, 1885-1890, other firms, Mojon Manger & Co. and Mermod Frères, made four-comb musical boxes. These had twenty-two inch cylinders, and the combs were all of equal length, and each comb was complete in itself. They were produced also in the cheaper quality, but always with the twenty-two inch cylinder. The musical effect was splendid, but for some reason not many of the four-comb instruments were made; this seems strange, as even the cheaper patterns had well set-up cylinders.

It may be that by producing four-comb musical boxes the manufacturers had reached a stage of over-development, had in fact so improved the musical box that it no longer appealed to the same genteel taste of people that had favoured the ordinary type of musical box. This was at a period when soft, mellow music was preferred, and long before jazz bands, saxophones and other strident music had caught on in public favour. However, the enterprising makers continued to improve musical boxes in every conceivable way, each maker seeming to try to outdo the other, and many of the improvements were patented, and thus protected in England, Germany, France and U.S.A. There are no less than 200 patents recorded in the United States Patent Office relating to musical boxes; there are patent spring-winding

devices, also tune-selecting and tune-changing improvements, safety-checks for preventing a spring getting out of control, long-playing devices, cylinder-changers, zither attachments, and a large number of others, some useful, some useless.

A useful and economic improvement was a mainspring that was anchored directly to the cylinder spindle, thus doing away with the spur-wheel (the intermediate wheel) that is usually on the cylinder spindle and engages with the wheel on the spring drum. This improvement was economical in more ways than one, the wheel on the spring drum was a ratchet to which the winding arbor was attached, thus the drum was wound round the spring, and the crank handle protruded through the side of the box. This direct driving required a much weaker spring, and was used by Messrs. Mojon Manger and other makers, particularly on penny-in-the-slot machines.

Some of the improvements were giant musical boxes. Lecoultré and a few other makers produced these. The cases were six feet, or more, long, and the cylinders two feet nine inches long. Some had organ accompaniment. Nicole-Frères made a series of large musical boxes, but none larger than four feet ; they were of good quality, and were called the *Grand Format*. Most, if not all of the interchangeable cylinder machines were large, as, of course, the interchangeable gear required extra space, but although a large number were made between the years 1860 and 1880 they were never quite so popular as the medium size fixed-cylinder boxes, perhaps because of the space they required, or it may have been in some cases a question of expense, as they were all of good quality and therefore not cheap. Space was also required for the spare cylinders, and it was the practice at first to supply a table containing drawers to hold the cylinders. These tables were handsome pieces of furniture, and were usually inlaid to match the box. Some were made in the form of a writing-table with a sloping front and spaces for pens, ink, etc. The side drawers held the spare cylinders. Also there were very fine hand-carved tables and boxes. Heller seems to have specialised in these. At a later date, 1880-90, the firms of Nicole and Baker-Troll made drawers that fitted into a space underneath the musical box case, thus doing away with the table. Musically, the interchangeable cylinder musical box was never quite as good as the good-class fixed cylinder type of instrument.

In 1870 the firm of J. H. Heller, and afterwards Lecoultre, made some very large musical boxes with organ accompaniment, some with interchangeable cylinders. Some of these had, on the front of the case, a tiny keyboard connected with the reed organ, so that it was possible for one skilled in organ playing to accompany the automatic music. At that period these were the most expensive type of musical box made, and a large room would be required to see and hear them to perfection. At about the same period some cases by Bremond and some of the French manufacturers were made in the form of a writing-desk to stand on a table; the back portion of the desk contained the musical movement, and the spare cylinders were in a drawer under the sloping top of the desk. Not all the interchangeable cylinder boxes had tables or drawers, some had the spare cylinders in a separate box.

While these elaborate and expensive instruments were selling to the more or less wealthy class of the community, there was also a demand for a cheaper and less pretentious type of musical box to be within reach of the masses. Between the years 1875-1897 a large number of the cheaper, and therefore inferior, pattern musical boxes were produced in Switzerland and Germany, and imported to this country. It is perhaps difficult now to understand public taste in the later Victorian days. Many of these cheap boxes had two or three bells, and from the character of the music they were obviously intended only for the English market. The programmes consisted mainly of the popular music-hall songs and ballads of the time, and a fair percentage of the musical boxes were of good medium quality, but there were also a number of very inferior ones with cylinders six inches long, playing eight, ten or twelve tunes; the three bells were in some cases all of the same tone, and two of them would be struck at once. The whole machine was of very poor quality, the aim in producing them being cheapness, and thus many of the movements were of small size, and some had cylinders only four inches long; these would often be fitted into a large cheaply-made case, highly decorated with transfers and varnished. These tawdry machines were mostly produced at St. Croix; they would to-day be considered suitable only for children, yet, as they constituted the only kind of automatic music within reach of all, they sold in tens of thousands, and were to be found in almost every working-class home at a period when large families were the rule rather than the exception, and pianos or other expensive instruments were luxuries

that few could afford. These musical boxes were certainly within reach of all but the very poorest ; they could be purchased new for 18/- to 25/-. Such was competition, although this state of affairs did not prevent some really good-class musical boxes being made and sold by reputable firms who dealt generally in the better types of instrument.

There may, of course, be other reasons why public taste in the matter of music should degenerate. General progress and historical events are sure to have a certain bearing upon the economic world, and therefore upon public taste in the long run. The two decades 1860-80 saw many changes and many inventions in this country, at least. The inventions of the telephone by Bell in 1876, the electric dynamo (invented in 1867), the electric bulb (invented in 1879) all affected public and professional life in many ways. The importance of railways was being felt, and urban populations increased with unheard of rapidity. The markets of the world grew with the population figure. The population of Europe increased from 110 millions to 315 millions between 1780 and 1880.

CHAPTER III

The Disc Type of Musical Box

HOWEVER, a great upheaval was on the way for the musical box industry. The chief disadvantage of cylinder musical boxes was that the tunes could not be changed, except, of course, in the case of an interchangeable cylinder machine, and these latter were at all times expensive, and there were limitations to the variety of spare cylinders to be obtained. Further, these interchangeable cylinder musical boxes were usually very large. For a certain class of people the limitations of the cylinder musical box had long been a sore point. Now, from Leipzig in Germany comes one Paul Lochmann, an enterprising man who was in a short time—a matter of a couple of years or so—to revolutionise the entire musical box industry. Paul Lochmann had hitherto made mechanical fountains in his workshop in Gohlis, near Leipzig. These little indoor fountains were very ingenious, and for a time had found a ready sale, but they had to be worked by a small steam engine, and steam engines could not be tolerated in every Victorian parlour, so in 1885 Paul Lochmann introduced a musical box playing circular card discs which he called the *Symphonium*. I say “introduced,” because Lochmann was not the originator of the disc machine, he was, however, the first to produce one on a large scale and put it on the market. He took out a patent for this machine in 1886.

Lochmann's first machine had little levers to pluck the comb, and holes in the card disc operated the levers. In a short time one of his workmen, Paul Wendland, devised the star wheel for lifting the teeth of the comb, and Lochmann immediately adapted this method, and also metal discs instead of card, and very soon disc machines were produced in large numbers, and one was on the market playing 15½-inch discs—the largest so far. This machine had two combs and was fitted into an upright cabinet, with a penny-in-slot attachment.

It was not long before Paul Lochmann had a rival, The Polyphon Music Works, who started in a large way in Leipzig. When Paul Lochmann used star wheels to pluck the comb he had to have projections on the steel disc instead of holes. These projections were formed by being partially punched out of the metal plate, and bent up at right angles ; he afterwards improved on this by bending up a second piece immediately adjacent to the first, and bent so as to reinforce it. The Polyphon company used a single strip of metal formed as before by being partially punched out of the disc, but bent backward in a semi-circle, the extreme tip resting on the disc itself, thus gaining support and strength.

Competition among the makers of disc musical boxes was already keen, even to the point of being vicious, and a lawsuit was started between Lochmann and the Polyphon company concerning the design of these projections on the backs of the steel discs. Lochmann claimed they were his own original design ; however, he lost the case, and there were great rejoicings in the Polyphon factory in consequence ; to commemorate the victory over Lochmann they decorated their premises with flags.

Entirely different dampers had to be devised for the combs on a disc machine. Instead of being underneath the point of the tooth of the comb the damper was at the side, and was a strip of spring brass operated by the starwheel. This type of damper was a great improvement. Some of the small and early Symphoniums had feather-quill dampers, but it was necessary to renew them quite often.

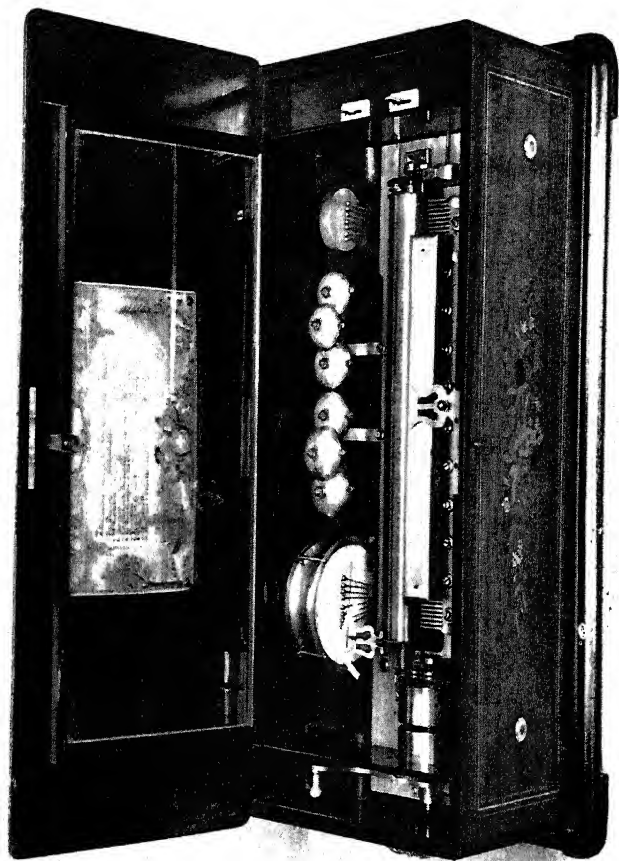
For some years the Symphonium company and the Polyphon company continued to make disc musical boxes, and to improve them. The Polyphon company employed about 400 people, and the Symphonium company nearly as many.

It is worthy of note that these German competitors found it necessary to send to Switzerland for comb makers, and these Swiss experts were engaged at Leipzig for some years. The comb-tuners were German, and of necessity they had to work in a more quiet spot than a factory, so they occupied rooms in a large house adjacent to, but not actually joining, the factory. Lochmann had agents for the sale of his Symphoniums in London, Birmingham and Glasgow, and issued elaborate illustrated catalogues. Great enterprise was shown by the makers of Polyphons and Symphoniums, and they were made in many and



Model of spinette, fitted as work-box. Size 11 ins. by 7½ ins. by 6 ins. Two-air musical box in the base. Laminated comb in sections of five.

David Martineau Collection.



Large musical box playing ten airs; with drum, six bells, zither and castanet accompaniment. Cylinder 17½ ins. long. 98 teeth to comb.

David Martineau Collection

various patterns. Some were in the form of musical money boxes, with discs 9 inches in diameter that played when a coin was inserted, and were intended for children, as also were the even smaller ones turned by a crank handle; these had 6 inch diameter discs and were suitable for the nursery.

Lochmann made large Symphoniums playing three discs at once; others played two discs.

Needless to say, all this development of the disc musical box had a most devastating effect upon an important branch of Swiss industry—the production of cylinder musical boxes. However, in the year 1895 the Swiss manufacturers succeeded in making a Swiss disc musical box that was by many considered to be as good as, or even superior to, those of German make. The first of the Swiss disc machines was the *Stella*, which was made and sold by Messrs Mermod Frères of St. Croix. This indeed was a good-class machine, and was, moreover, an improvement on the German Symphoniums and Polyphons in that it was without projections on the back of the disc. Holes in the disc operated the star wheels. The *Stella* was made in various sizes, and the machines and cases were of better workmanship than were the Polyphons and Symphoniums. The music was good, and the tone mellow and less strident than the German machines. The *Stella* was quickly followed by other makes of Swiss disc musical boxes. We had the *Mira*, the *Britannia*, the *New Century*, the *Helvetia*, the *Harmonia*, and later the *Edelweiss*, which is still made in small sizes by Messrs. Thorens.

For some reason the German machines were so far the most popular and widely known; they were, moreover, constantly being improved upon. The popularity of the Swiss disc machine was short lived, and in a few years faded out altogether. It is safe to say that all the Swiss makers of disc machines lost money by the venture. The music produced by the Symphonium and the Polyphon was considered by some to be far superior to that of any cylinder type musical box. Needless to say, this opinion was not universal. Certain it is that the music of the disc machine was always clear and distinctive, and it had the advantage of always being up-to-date with regard to the rendering of topical songs and ballads from the latest musical comedies and operas, in addition, of course, to the ever popular grand operas and other classical music.

The Polyphon company issued a dozen or more selections

from each of such shows as *Tom Jones*, *San Toy*, *The Geisha*, *The Greek Slave*, etc., and sets of discs comprising the gems of Lionel Monckton, Leslie Stuart and Lehar, etc. These discs were usually issued within a few weeks of the shows being produced in London; thus it will be understood how very popular these musical boxes became at a time when they were practically the only form of automatic music available to the masses. The musical scores were always closely followed.

Most of the larger disc machines had two combs, some had four combs. Paul Lochmann had at first in his Symphoniums set his combs one above the other, that is tandem fashion, one above the centre of the disc and the other below; this arrangement needed two sets of star wheels to pluck the combs, and the teeth of each comb were lifted upwards. Paul Riessner and his partner Gustave Brachhausen of the Polyphon Music Works had set their double combs tooth to-tooth, so that one set of star wheels operated both combs; this was economical, but one comb had, of necessity, to be plucked downwards, and this meant having a different pattern damper for the lower comb. However, Paul Lochmann afterwards adopted the same system on his Symphoniums.

These items made a difference to the cost of production, but life for the disc type of musical box was only just beginning. So far the largest disc was the 15½-inch. Early in the year 1894 Gustave Brachhausen went to America and founded The Regina Musical Box Company, which had a capital of 400,000 dollars, and opened a factory at Rahway, New Jersey. Brachhausen had taken with him a number of German mechanics, and also Swiss comb cutters, and in due course musical boxes playing larger discs were being produced in the Rahway factory, and later by the Symphonium and Polyphon companies. The Regina Company produced a wide variety of machines, mostly of the penny-in-slot type. To quote Mr. Lloyd G. Kelley of Hanover, Massachusetts, who is at present successor to the Regina Company: "Their policy was to adopt methods of standardisation wherever possible, and thus they achieved a high degree of interchangeability with parts used in their various machines. This uniformity of design and manufacture was perhaps the first to appear in any country, as mass-production found an early inception in the techniques used by the engineers of the Regina Musical Box Company. The cases of these instruments were fashioned

of oak, mahogany and cherry almost entirely, but a few more exclusive models were made of walnut. It is interesting to note that great adherence was evidenced at that time to the rugged and somewhat plain outer design of their cases, which reflected the popular trend in America with furniture of that period. With reference to the mass-production methods, good authority is yet available which shows that the Regina Musical Box Company of America manufactured and sold well over 82,000 musical boxes. Many are still to be found in most of the States, but certain models have already become rare and difficult to find."

Soon there was competition in the German camp, many small companies started to make disc musical boxes. Chief among these were Paul Ehrlich and Friedrich Ernst Ehrlich of Gohlis, Leipzig. These had at one time made little hand-turned reed-organs (*organettes* they were called), some played paper rolls, others played card discs. The Ehrlichs now started to make a disc musical box which they called the *Monopol*. This was a small table machine worked by a spring motor. They were made in various sizes and were well constructed and produced good music. A number of other firms sprang up; we had the Fortuna, the Komet, the Kalliope, the Gloria and the Celeste. A novelty was a smoker's cabinet, the Alexandra; this was a nice inlaid case, and contained a disc machine, it had folding doors, and was made to hang on the wall. The Swiss had made a similar cabinet, the Britannia. Both the German and the Swiss makes became very popular, and sold in large numbers. However, none of the rival small firms seem to have been successful for very long.

The next larger size disc to be made by the Polyphon Company was 19 $\frac{5}{8}$ -inches. This had the usual twin combs, comprising 118 notes in all, and was soon to become the most popular of all the Polyphons; the penny-in-slot model was sold in large numbers all over the world. Paul Lochmann had produced a 19 $\frac{1}{8}$ -inch disc Symphonium. Next came the 22-inch disc Polyphon, which was an improvement in more ways than one. The setting up of the music on the 22-inch disc was exactly the same as the 19 $\frac{5}{8}$ -inch, but with the addition of sixteen metal dulcimer notes; this was in an upright case and was usually fitted for penny-in-slot, but for the table model sixteen bells took the place of the dulcimer notes. Afterwards came the 24 $\frac{1}{2}$ -inch disc Polyphon. This had 159 notes, and was a great

improvement ; it was fitted in a more elaborate case. There was also a 25-inch disc Symphonium and a 20-inch disc Regina. The Regina Company made the best quality disc machines from the start, and were continually improving upon them. There is a marked difference in the music produced by a Polyphon and a Regina.

Before the Regina Company had been established twelve months they were producing musical boxes playing discs ranging in size from 8-inches to 27-inches in diameter. This latter size is undoubtedly the best disc machine made either before or since ; it had two combs, comprising in all 172 notes tuned in chromatic scale, and embracing over seven octaves. Time of playing this disc was two minutes. Nothing in automatic music had ever been heard before like the 27-inch disc Regina, and they soon became popular the world over for their superb tone quality, great range and volume, with a clear ringing resonance. This machine was displayed at the Crystal Palace and at other exhibitions in London and in other parts of the country in 1895-6.

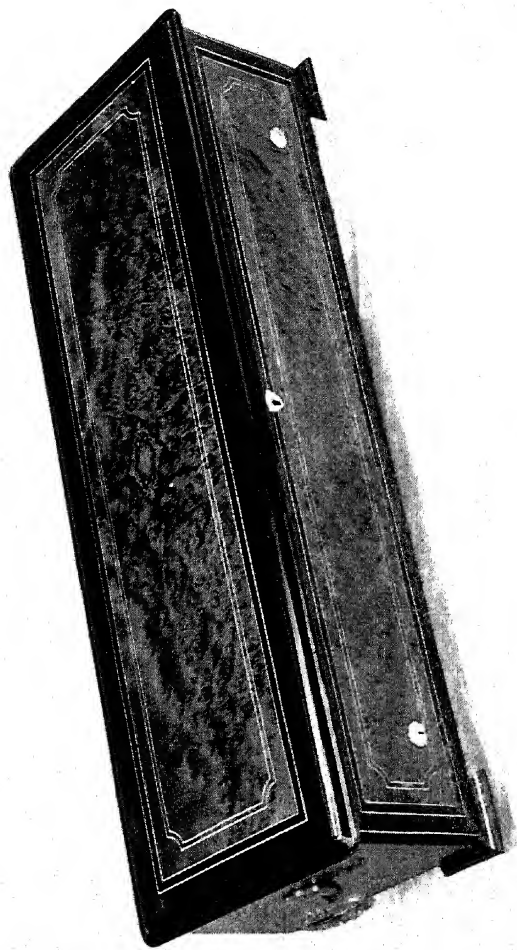
Afterwards the Regina Company made grandfather hall clocks with cathedral gong and Regina 15½-inch disc machine attachment. These clocks would play after the hour had been struck, or the music could be played independently of the clock at any time. They also made player pianos in the coin-operated pattern and electrically driven.

So far the only drawback to the disc machine was the necessity for changing the tunes; this was thought to be irksome, so we find that in 1896 Gustav Brachhausen invented and patented a self-changing disc machine. This was a very ingenious contrivance, and soon revolutionised the Polyphon and Regina trade. Large numbers of both machines were now manufactured in the penny-in-slot pattern. These held a magazine of twelve discs, and either of the tunes could be selected to be played, or for private use it would also play all the tunes at one winding, one after the other. By inserting a penny the selected disc would be carried up from the magazine, placed on the machine, played twice, and afterwards returned to the magazine. The self-changing Polyphons were truly marvellous pieces of mechanism, they were constructed to work very smoothly and silently, and they proved splendid money-takers as regards the penny-in-slot pattern. Many people would insert a penny just to see the machine work ; thus, they were always popular in places or



Jewel or ring stand in the form of a model harp, in silver gilt and mother-of-pearl, containing two-air musical box playing two tunes for harp. Height 7½ ins.

David Martineau Collection.



"Sublime Harmonie" musical box with lid closed.

saloons frequented by children. The weight of the 27-inch disc Regina self-changer was about 400 pounds. It was driven by two huge coiled springs encased in steel barrels 7-inches in diameter and 4-inches wide. The lower spring drove the motor for lifting the discs out of the magazine into position for playing. A later improvement was a single spring that drove both motors.

These machines sold in large numbers. The sizes of the self-changing discs were: Polyphon, 19 $\frac{5}{8}$ -inches; Regina, 20-inches; Polyphon, 22-inches; Polyphon, 24 $\frac{1}{2}$ -inches; Regina, 15 $\frac{1}{2}$ -inches and 27-inches. Incidentally, the 15 $\frac{1}{2}$ -inch Polyphon disc would also play on a Regina. One, Schweichert, a member of a military band was at one time setting-up discs for the Polyphon Company. He also composed and arranged music specially for the Polyphon. Soon after the invention of the self-changing disc machine, Paul Lochmann, unable to stay the pace, retired, leaving the rival companies masters of the field. Regina and Polyphon machines sold at quite reasonable prices, reasonable even at that period. The sixteen-note dulcimer machines with self-changing device cost £45. The price included twelve discs. Without self-changing, the price was £23 10s. The 27-inch Regina self-changer cost £90; without self-changing £56.

It is, of course, largely a question of personal taste, but there are to-day many collectors who maintain that the music of the large disc machines is superior to that of the best type of cylinder musical box, notwithstanding there are, without doubt, certain qualities about the better-class cylinder machine, particularly those playing overtures and oratorios, that seem to appeal to certain collectors, and especially to those with a taste for antiques, the overture boxes combining really good, well-rendered music with the additional attraction that they are now more or less rare, and it is reasonable to suppose their like will never be produced again. Also, for the most part, it may be said the magnificent inlaid cases seem to fit almost any furnishing scheme, and this cannot be said of the majority of Polyphon cases.

The Polyphon company did not sell their machines direct to the public. It was found more convenient to sell through agents. Three agents in all were appointed. The first were Bender & Co., a Leipzig firm; one Starlacker was head of this concern. The second agents, also of Leipzig, were Peters & Co., who were represented in London by Messrs. Henry Klein & Co., of Wardour Street, W. The third Leipzig agents were Hertzolt

& Poppitts. When the firm of Nicole Frères closed their factory in Geneva in 1895 and gave up their London agency, two of the Swiss mechanics, Metert and Meitzner—they had been with the firm for some years in London—together with the agent, Brunn, continued to trade as Nicole Frères, and retained the premises in Ely Place ; they did repairs and supplied spare parts, and afterwards made phonograph and gramophone records. They took up the agency for Polyphons, representing Hertzolt & Poppitts in London. Such is fate, the musical box makers selling the very goods that had forced them out of business. However, for some years they did good business. Polyphons were in demand ; further, repairs were needed from time to time, and new discs of popular tunes were in constant demand. The passing of the Act in 1900 forbidding children under the age of 14 to be taken into a public house was the beginning of the end of the popularity of the Polyphon, fewer were being ordered or placed in taverns in England at any rate, and the sales fell. Eventually, both the Polyphon and the Regina companies closed down. This would be about 1912.

At one time, both disc and cylinder musical boxes were made in Cologne and Vienna, also at a later date at Prague. The industry in the Vallée de Joux, where the instruments were first made, had faded out by 1860. However, other towns in Switzerland had taken up the manufacture of cylinder musical boxes other than Geneva, and St. Croix, notably Bern, Teufenthal and Argovie ; and in spite of the competition of the disc machine the Swiss were still making cylinder musical boxes, although, of course, on a very much smaller scale, and of somewhat poorer quality, even down to 1914. The makers battled well against the makers of disc machines, and, in a frantic endeavour to counter their rivals, produced some thousands of cheap instruments, as I have stated before ; however, a certain percentage of good-class machines were made, particularly by the firms of Dawkins and Baker-Troll. In fact, Dawkins made some really first-class musical boxes with interchangeable cylinders and on beautifully inlaid tables, even as late as 1914.

To-day only small movements are made, and these (principally in St. Croix), are being more or less mass-produced in thousands, and are being fitted into a greater variety of cases than ever before. There are musical hair brushes, arm-chairs, stools, hall-stands, cigar and cigarette cases, liqueur stands, decanters, beer

mugs and jugs, jewel-cases, fruit-plates, musical pictures (a small movement behind a picture in a frame), even musical toilet-rolls. There are also a large variety of high-class toys containing movements, dancing dolls, rabbits appearing out of a canvas cabbage, and toy roundabouts. Another novelty is a hand-carved wooden picture, in a frame, of the interior of a Tyrolean cottage ; on the miniature table is a lamp, a tiny vase and a book. There is a fire-place, and chairs are placed about the room. A knocker on the inside of the door is the winding-key of the musical box. When the music is started the fire glows and the lamp on the table lights. The whole thing is only about 12 by 10 inches. The Swiss do not produce quite all these novelties, the movements are bought by the makers of fancy goods in Paris, London and the U.S.A.

There is at the present time a greater demand than ever before in all parts of the civilised world for the "novelty" type of small musical box.

CHAPTER IV

Nicole Freres

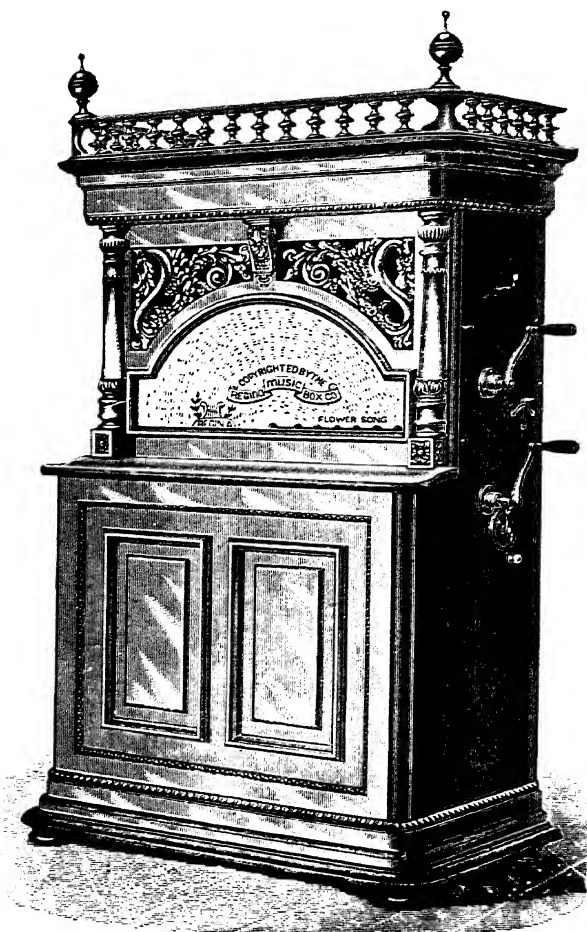
IT IS GENERALLY acknowledged among connoisseurs and collectors that Nicole Frères of Geneva produced musical boxes far superior to those made by any other firm, good as some of the others undoubtedly were. Even in the early days of the large-sized movements, Nicoles only made first-quality instruments. The firm were established in 1815, had agents in London before they opened a warehouse of their own and continued to have agents for some years after.

The following firms sold Nicole Frères musical boxes : T. Cox Savory & Co., Imhof & Muckle, Keith, Prowse & Co., Camera Cuss, Wales & McCulloch, Sibber & Fleming Ltd., Alfred Hays, 82 Cornhill, E.C.

Nicole Frères' first London house was in Hatton Garden, and afterwards they moved to larger premises in Ely Place, Holborn Circus, where they had two warehouses.

From 1840 to 1865 Nicoles made a series of six and eight air musical boxes that produced excellent music, and were also finely constructed ; the larger ones had 20- and 22-inch cylinders ; some of them had *piano-forte* arrangement of the combs, and others had one long comb. Apart from those instruments playing overtures, which were in a class to themselves, these large musical boxes usually played operatic arias or oratorio music. Collectors agree that this was the peak of the firm's best productions. The cases were not ornate, but often quite plain, or with only the lid inlaid and the case itself only just large enough to contain the movement. The oratorio selections—usually six—were beautifully rendered, strict attention being paid to every detail.

Another very popular series were made in 1840. These were in the 2000 series, and were of course key-wind. The cylinder was 12- and sometimes 13-inches long, and $3\frac{1}{4}$ — $3\frac{1}{2}$ -inches diameter,



Orchestral Regina, Nos. 8 and 8a.

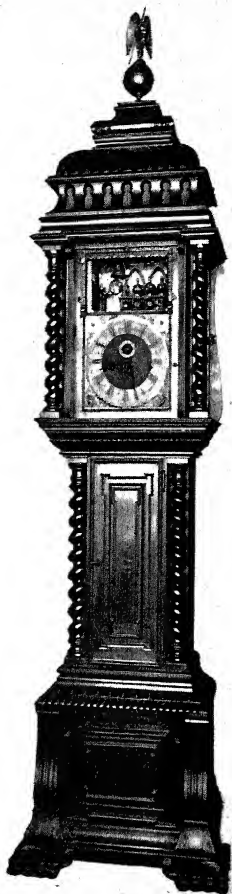
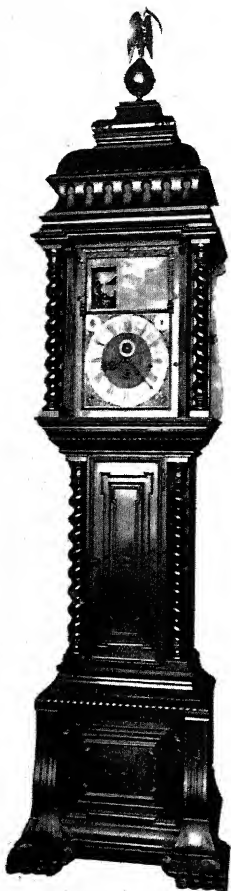
WITH AUTOMATIC TUNE-CHANGING DEVICE. LONG-RUNNING MOVEMENT.

No. 8 FOR PARLOUR USE. No. 8a WITH SLOT ATTACHMENT.

Two large Combs, with 172 Tongues, tuned in chromatic scale, embracing over 7 octaves. Dimensions of Tune Sheets, 27 ins. diameter. Case in Oak and Mahogany, highly polished; dimensions, 72 x 39 x 24 inches.

Price, £90. Extra Tune Sheets, 7s. 6d. each.

The 27-inch disc Regina musical-box; with automatic tune-changing device. The best disc musical box ever made.



Musical grandfather-clock, 8 feet high. Made by Rowley for the Indian market. Above the dial are automatic figures that strike the chimes on bells. In this picture these figures are hidden from view by a little curtain, like an act-drop, upon which is painted a landscape with a blacksmith.

The curtain is drawn up just before the clock chimes, and the working figures can then be seen. A musical box plays after the hour is struck.

Photographs kindly lent by Messrs. Rowley

and revolved once in playing two airs; thus, if it were a four-air comb, eight airs were set up on the cylinder, and a six-air comb would play twelve airs. All instruments in this series are good, and the cylinders well set-up; the music was nearly all operatic. This two-tunes-per-turn system proved very favourable at the 1840 period, and the firm made them in large numbers for thirty years or more, but the best of this series were made between 1840-45. The present writer is not a music critic, and it is not desirable to be dogmatic concerning the music produced by these instruments, but abler pens than mine have praised the products of the firm of Nicole-Frères, and my observations are, after all, only intended to augment the opinions of others; it is my self-appointed task to describe these and other musical boxes.

Another series were produced between 1860 and 1870 that played old English and Scottish airs, usually two; these had cylinders, 18-inches long and $4\frac{1}{4}$ -inches thick, and four-air combs, and the cylinders would make two revolutions to play each of the airs with variations. These variations were composed by such men as Wallace and Benedict, and were set-up in magnificent style, the best use being made of the comb, that was specially tuned for this class of music. Some of these had the *forte-piano* arrangement, others had two long combs.

There was also a series produced (1840-50) of a smaller and popular type of musical box, all *forte-piano*, and with cylinders 13-inches long; key-wind, of course, but a good-class musical box much sought to-day by collectors. It would seem they had been popular from the first; they were in neat, small cases, and thus easy to carry. Everything was of the finest quality, and many of these early machines exist to-day that seem in as good condition as the day they were made. Many of the cases of the larger instruments were masterpieces of the cabinet-maker's and marquetry worker's art. Not only were the cases inlaid with rosewood, walnut, ebony, satinwood, cherry, coromandel and amboyna, but also with brass, zinc, ivory, mother-of-pearl and even silver. The programmes or tune sheets were in some cases of brass and silver plate, beautifully made and engraved.

At one time the movements were sent over from Geneva in parts and assembled in the London workshops by Swiss mechanics, as this saved payment of duty. Their chief mechanic for many years was Henri Metert, who had been with the firm in Geneva since he was eleven years of age; he was a very capable man, and

a maker of mechanical singing-birds. For a time the pricking and pinning of some of the Nicole cylinders was done in the London workshop. The pricking machine was not unlike a very large typewriter, and could take cylinders from 6- to 22-inches long. Expert musicians were needed for the process of pricking. The machine only made small dents on the cylinder, and these dents were afterwards drilled through and pinned, that is the pins were inserted, their correct uniform height being ensured by the use of a hollow punch. Any mistakes in the pricking were marked by a tiny nick at the side of the wrong dent, and this was not drilled through. After pinning—all done by hand—warm cement was run in the cylinder, and the ends sealed ; the cylinder was then spun in a special lathe on its own spindle, this was called shaving, and its purpose was to make all the pins of exactly the same uniform height. Any finished musical box that did not come up to the Nicole standard of perfection was not offered for sale, but was put in a spare room in one of the warehouses—dumped. In the course of years the cheap musical boxes came on to the market, and, rather than compete with them, which would have meant selling an inferior article, the firm of Nicole Frères decided to give up business.

The Symphonium and Polyphon disc musical boxes had also greatly reduced the sales of the cylinder machines, and in 1894-5 the Edison Phonograph was just coming on the market—it had been heard publicly in London in 1894—so the firm of Nicole closed their factory in Geneva, and, of course, also their London house in 1895. The London agent at this time—since 1893—was a German named Brunn, and he, with Henri Metert and another mechanic Meitzner as partners, took over the premises in Ely Place, and continued to trade as Nicole-Frères. They did repairs and made spare cylinders for the Nicole interchangeable cylinder machines ; they had a barrel pricking machine there for that purpose. They also supplied spare parts to the trade, and afterwards made phonograph and gramophone records—the latter of cardboard—and were the London agents for Polyphons and Regina disc machines. Brunn had all the faulty Nicole musical boxes, that the firm had refused to sell, brought out of the warehouse and put in working order, and these were in due course sold. A number of them were in the 44,000 series, and this is why boxes in this and other series are to be found occasionally that are not up to the usual Nicole standard of perfection. The

partners continued in business for some years, but eventually Meitzner left to set up on his own account, and Brunn afterwards (in 1907) retired, and returned to Germany. Meitzner, now an aged man, is still living in Germany. Henri Metert carried on the business—mostly doing repairs for the trade—until his death on February 4th, 1933. He was 80, and had worked to within a month of his death. He had been with the firm for many years. His first job, as a boy, was tuning the bells used in their boxes. He was the firm's chief mechanic in London until they closed in 1895.

The musical boxes produced by the firm of Nicole Frères were exported to every country in the world, and it was found that the drum-and-bell accompaniment boxes were much in demand in China and India. Large numbers of this type of instrument were sent to China, some having also singing-bird accompaniment. These latter also found much favour in India, and the firm made, specially for the Indian market, four-overture movements with cylinders 22-inches long, to fit into large bracket clocks. These clocks were elaborately made, and fitted in ornate cases standing about 3-feet 6-inches high. There were brass figures that were set in motion when the music played. These clocks and cases were made by the London firm of clockmakers, Messrs. H. Rowley, still in business in Clerkenwell. It is perhaps to be regretted that none of these musical clocks remained in this country. The four-overture movements were mounted inside the clock-case out of sight, and connected with the chiming movement of the clock, so that one overture played every three hours, at three, six, nine and twelve o'clock.

The firm of Nicole, in common with other notable makers, would make any type or pattern of musical box to a customer's order. Elaborate and expensive machines are to be met with, bearing silver-plated tablets stating they have been specially manufactured, and giving either the initials or name of the collector for whom they had been made. These are usually, although not invariably, large and elaborate overture musical boxes, and form another indication of the popularity of these instruments at a time, not so long ago, when soft, mellow music was preferred. On one occasion, a foreign prince ordered an expensive musical box to be constructed to play the Polish traditional folk song *Krackavienne*. Nicole made this with a 22-inch cylinder, 4-inches thick, and the tune was played in six

variations, arranged by Wallace. It had two combs of equal length, the second comb being really a continuation of the first. The case had an oval lid, and was beautifully inlaid. The front and sides of the case, as well as the lid, and including the inside glass lid were inlaid in ivory, brass, zinc, mother-of-pearl and various coloured woods. The tune sheet was of silver, and finely engraved and enamelled. Messrs. Nicole paid £11 to the case-maker for this case ; this was in 1880.

Queen Alexandra, who was a collector of musical boxes, ordered one to be made to play Mendelssohn's *Songs Without Words*. This was a first-class machine of the *forte-piano* pattern. The case was of walnut, only slightly inlaid. Queen Victoria and King Edward VII were also collectors of musical boxes.

Untill 1880, all Nicole machines had bedplates of gunmetal or hard brass, and it seems this imparted a quiet, mellow tone without any metallic sound. Quoting from the fly-leaf of the catalogue of musical boxes issued by Messrs. T. Cox Savory & Co., Cornhill, London, 1852 : "In furnishing the annexed list of musical boxes, we would point out that those stated to be of the manufacture of Messrs. Nicole Brothers of Geneva are as superior to those of any other makers as the piano-fortes of Messrs. Erard or Messrs. Broadwood are to those of ordinary makers. They are highly finished, of excellent tone, and very durable. The frequent demand for Musical Boxes of loud tone renders it important to observe that the aim of the Artist employed in their construction is that of conveying, with the highest degree of precision, the idea and spirit of the Composer whose works he illustrates : and the value of the mechanism is mainly regulated by the success which in this respect is attained. Relating to this fact, the following statement has been obtained from the first manufacturers of the article on the Continent : 'You ask our opinion on the practicability of increasing the loudness of Musical Boxes. We answer that it is not possible to make those of the best quality very loud : if the music is too strong, it produces a grating, metallic sound. Neither the connoisseur nor the musician apply for Musical Boxes playing very loud. The situation however in which a Box is placed causes a great difference in its loudness and sound.' "

Unlike most of the other manufacturers, the firm of Nicole Frères did not change the serial numbers of their musical boxes from the time they started in 1815 until they went out of business

in 1895. This is fortunate for the collector, because it is thus an easy matter to judge the date of a Nicole machine from the serial number.

19,000	were made in	1839	41,000	were made in	1870
25,000	„	1843	43,000	„	1872
27,000	„	1845	44,000	„	1880
29,000	„	1847	46,000	„	1882
35,000	„	1860	50,000	„	1888
38,000	„	1865	52,000	„	1895

On the inside cover of a Nicole Catalogue, 1880, appears :—

LINES ON HEARING ONE OF NICOLE FRERES' MUSICAL BOXES

*Hallo!—what—where—what can it be
That strikes up so deliciously
I never in my life—what no!
That little tin box playing so,
It really seemed as if a sprite
Had struck amongst us, swift and light,
And come from some miniature star
To treat us with his pearl guitar.
Hark! it scarcely ends the strain,
But it gives it o'er again.
Lovely thing!—and runs along
Just as if it knew the song:
Touching out, smooth, clear and small,
Harmony, and shake and all:
Now upon the treble lingering,
Dancing now as if 'twere fingering.
And at last upon the close,
Coming with genteel repose.*

Leigh Hunt.

In the same catalogue is a verse by Fanny Kemble :

ON A MUSICAL BOX

*Poor little sprite! in the dark, narrow cell,
Caged by the law of man's resistless might!
With thy sweet liquid notes, by some strong spell,
Compelled to minister to his delight!*

In a later catalogue is a verse by James Hogg :

*Of all the arts beneath the heaven,
That man has found or God has given,
None draws the soul so sweet away
As music's melting, mystic lay.
Slight emblem of the bliss above.
It soothes the spirit all to love.*

In Harford's *Life of the Late Lord Bishop of Salisbury* we find :

His recreations were simple and innocent: religious and literary conversation: the perusal with a friend of some fine pieces of poetry: a pleasant walk: listening to the tunes of his Musical Boxes, of which he had several of exquisite quality. Such were his favourite relaxations, and he enjoyed them with a keen relish. When his nights were, as they sometimes proved, wakeful, he would solace the time by a tune from one of these Boxes, which usually stood by his bedside.

The catalogue of Messrs. T. Cox Savory & Co., 1852, contains particulars of a number of Nicole musical boxes playing waltzes and polkas by Jullien, the famous composer and conductor at Drury Lane Theatre at one time. There are several six and eight air boxes playing sets of quadrilles by this composer, such as The Royal English Quadrilles, Royal Scottish Quadrilles, Royal Irish Quadrilles, the Jetty Treffz and Quadrille Giselle. There is scarcely a programme but contains at least one of Jullien's waltzes or polkas. The Bridal Waltz, Redova Waltz, American Polka, Stella Polka, Circassian Polka, Agnes Polka, Mazurka Cellarius, Original Schottische, and, of course, Jullien's famous Drum Polka.

Exhibition Awards. At the Sydney Exhibition, 1879 and 1880, the firm had a gold medal; at the Melbourne Exhibition, 1880-81, Nicole Frères were holders of the highest award for perfection in musical boxes. In the Inventions Exhibition, 1885, they had the highest award for tone and finish.

CHAPTER V

Barrel-Organs, Musical Clocks and Mechanical Singing-Birds

BARREL-ORGANS

When mentioning barrel-organs I do not of course refer to the comparative modern street or fairground organs. Large organs with the tunes set-up on a wooden barrel were used in English churches as early as 1670. These were played by turning a crank handle, usually by the clerk or by a choirman. By 1700 smaller and quieter organs were also being made for use in private houses, and these played secular as well as sacred music. Two of these small chamber organs are in the Victoria and Albert Museum, South Kensington, where there is also an even smaller and earlier bird organ. The barrels were always of wood, with a large pear-tree wood cog-wheel at one end that engaged with a brass spiral or snail connected to the crank handle. These smaller organs usually had three sets of metal pipes and one set of wooden ; the music produced was soft and mellow, and must have been an asset at a period when few people were able to play a keyboard organ. The barrels had eight or ten tunes set-up on them, and the programmes consisted mostly of jigs, marches or martial music, and love songs of the period. The church organs had, of course, both an Easter and a Christmas barrel, in addition to three or four barrels of hymns. The instruments for use in private houses sometimes had a drum-and-triangle stop, and I have seen them with a bell.

Some of the early London makers were : Bates, H. Greston, Flight & Robson, Henry Bevington, Flight & Kelly and Broderif & Wilkinson ; this latter firm occupied large premises in Haymarket. In their catalogues they state they are "Musical Instrument Makers to Their Majesties, His Royal Highness The Prince of Wales, and all the Royal Family."

It would seem the barrel-organ was at one time a very popular instrument. Doctor Burner, contributing about 1810 to *Rees' Cyclopaedia*, says: "Of all musical instruments the barrel-organ is the most easy of performance, as it merely requires a regular motion given to it by a handle. On this account it is an instrument of very general use; and the recent improvements of some English Artists have rendered the barrel capable of an effect equal to the fingers of the first-rate performers."

About 1790-1800 the Germans came into the business with automatic barrel-organs, driven by a weight; and by 1824 small and very finely constructed barrel-organs were being made in Vienna that were driven by a large spring on the fusee and chain principle. These organs had the usual wooden barrels, at one end of which was a large brass "snail," and the barrels revolved six times without pause for one tune. The escapement was a large, endless screw, which ensured smooth running. This type of automatic organ was the forerunner of the much larger and more elaborate Orchestrion that was later also made in Vienna and in Freiburg. Messrs Imhof & Mukle at one time specialised in the manufacture of Orchestrions, as also did M. Welte & Son of Freiburg, and later, Messrs Limonaire of Paris. Orchestrions were usually about twelve feet high and eight feet wide, and the barrels were five feet long; the whole instrument was enclosed in a glass case. Such huge instruments were only intended for large private houses, or at times the entrance halls of hotels.

Without doubt the performance of some of these later automatic organs was excellent in every way, considering it was automatic music. There were, of course, smaller medium-sized organs produced in France and Germany that were quite suitable for use in a private house, in fact they were obviously intended for that purpose. These spring and weight driven organs had usually six stops, and the pipes were of wood and metal—usually four stops wood and two metal. They produced sweet, mellow music, without the addition and doubtful improvements of drums, triangle and cymbals that were the hall-mark of the raucous Orchestrion.

The poet Mason in his *Essays Historical and Critical on English Church Music*, 1795, expresses a preference for "the mechanical assistance of a cylindrical or barrel organ to the fingers of the best parochial organist." Many of these church barrel-organs



Eighteenth century barrel-organ by Broderif & Wilkinson, Haymarket, London. Three interchangeable barrels. Four stops. Triangle and drum accompaniment.

Louis Martineau Collection.

were in use as such down to the 1860-70 period, and a number were afterwards converted to a keyboard organ. A few of these converted organs are in use to-day in some of the small and remote districts ; one is in the small church at Weethley, near Alcester, Warwickshire ; another is in the Wesleyan Chapel at Bidford-on-Avon, Warwickshire ; this latter is quite a large organ. A number of the church barrel-organs and the smaller chamber organs are in private collections and museums.

At least one church barrel-organ is in use to-day : Mr. Charles Paget Wade of Snowhill Manor, Broadway, Worcestershire, writing to the *Radio Times* a few years ago said ; "In the small church at Shelland, near Stowmarket, Suffolk, there is at the western end a gallery for the choir, in the centre of which is a barrel-organ still in use. It is played by the clerk, Mr. Armstrong, who was a choirboy in his youth, and has never left the parish. He takes the greatest pride in this instrument. He told me he kept it locked because the Archdeacon interfered with it on one of his visits. There is a small organ in the chancel, and the two organs are used for different parts of the service. Mr. Armstrong has a great contempt for the other organ. The barrel-organ is a very good specimen of its kind, and the whole arrangement of organ and choir is delightfully quaint, for it has never been altered. The old clerk himself is equally original." There are six stops to the organ and Mr. Armstrong once told an interviewer : "I have had the same two out for years. I am not one for fiddling with the stops."

R. L. Gwynne, Rural Dean of Dunmow, writing to the *Radio Times*, says : "We have in this Rural Deanery an old church at Barnston, about two-and-a-half miles from Dunmow, where there is still a very fine barrel-organ. Owing to the retirement of the late rector I happen to be in charge. On March 11th I took my choir over to sing evening prayer. They sang unaccompanied, but the old barrel-organ played a fine voluntary before and after the service. The organ seemed to me to be in excellent form and tune. It is turned or handled by a choirman. It is kept locked in the old twelfth-century gallery, and reckoned as a great asset."

The present writer has heard a tradition—it concerns a Gloucestershire village church—that on one occasion an automatic barrel-organ refused to stop at the end of a hymn, so it was sung a second time. The organ still continued playing, so

it was lifted out into the churchyard, and it was still playing the same tune when the people left the church after the service.

MUSICAL CLOCKS

There were turret clocks—usually in church towers—that played tunes on bells at a very early period ; some of these clocks were without dials, but would just strike the hours, and a tune was played every three hours, at three, six, nine and twelve o'clock. There were also musical clocks for domestic use that played tunes on bells. One, made by Charles Clay of Fenchurch Street, London, at about 1740, is a very elaborate affair. It is eight feet six inches high, and the case is in two portions, the upper part containing the clock. The base or pedestal contains the chiming machine of twenty-one bells. It is weight-driven, and the barrel is 12-inches in diameter. The escapement is an endless screw. It plays Corelli's Twelfth Concerto—four movements—and the fugue in the Ariadne overture.

Another famous maker of musical clocks—he also made watches—was Robert Philip, of 6 New Court, St. John Street, Clerkenwell, London, 1779-88. The clocks which he made usually played two tunes, and were set-up on a brass barrel, very similar to a musical box barrel ; the chiming was set-up on the same barrel. The tunes and chimes were played on eight bells. There was a finger in the arch of the dial of the clock which could be moved to shift the barrel to play either song or dance. The song, on most of Philip's clocks, was "My Father's a-Mowing the Barley" ; the simple harmonies of this were easy to produce on eight bells.

The present writer has had through his hands a musical clock 15-inches high, the case of which is of solid gold, even the screws that hold the case together are of gold, and the heads filed off and polished so that it is almost impossible to see them. This clock was formerly in the Russian Imperial Court. There are eight bells and a brass chiming barrel is pinned for the tunes, six in number. It was made in Paris.

MECHANICAL SINGING-BIRDS

These were made at an earlier period than barrel-organs or musical clocks. There seems always to have been a fascination for these ingenious machines. Not only life-size birds in cages

but miniature birds in snuff-boxes, often with a musical movement in the same case, have been constructed. The mechanical birds go through all the movements of a real bird, wings flap, tail and beak move, and in some of the earlier ones the neck, and even the eyes move ; all the time the bird is turning from side to side on its little perch, and in some cases they flit from one branch of a miniature tree to another. Robert Robin, of Paris, made a mechanical singing canary—life size—for Marie Antoinette. This was in a richly ornamental cage, and the underside of the bottom of the cage was the dial of a clock which could only be seen, of course, when the cage was hung up. The bird notes were produced by tiny zinc pipes; there are three variations of a canary song, and one is played every hour, or can be played at will by turning a knob. The cage is on feet so that the clock continues to work even if not hung up. This has been through the present writer's hands.

Some of the Swiss and French miniature singing-bird snuff-boxes were very elaborate, the gold cases often had precious or semi-precious stones set in the lid, and at times they were made—as were the musical snuff-boxes—with a tiny fortune-telling device or moving figures on the lid.

These seem to have been first produced commercially about the middle of the eighteenth century, although there had been attempts to construct them at an earlier period. When first produced for sale they were considered such an astounding novelty that they at once became popular with the well-to-do class of the community, and were also purchased by the principal courts of Europe.

These little instruments were always expensive, so were never produced on a large scale, and thus never found their way into the homes of the masses. Apart from being clever mechanical instruments these little models were really little more than elaborate toys.

The birds were in some cases less than an inch high, yet they were so skilfully constructed that the bird-song was faithfully reproduced.

Of course, there were always cheaper patterns of singing-bird snuff-boxes, usually in tortoise-shell, brass, or even pressed horn cases. In more recent years—since 1920—they have been mass-produced in Germany and elsewhere, the movements are much more simple in construction than the antique ones, but they are

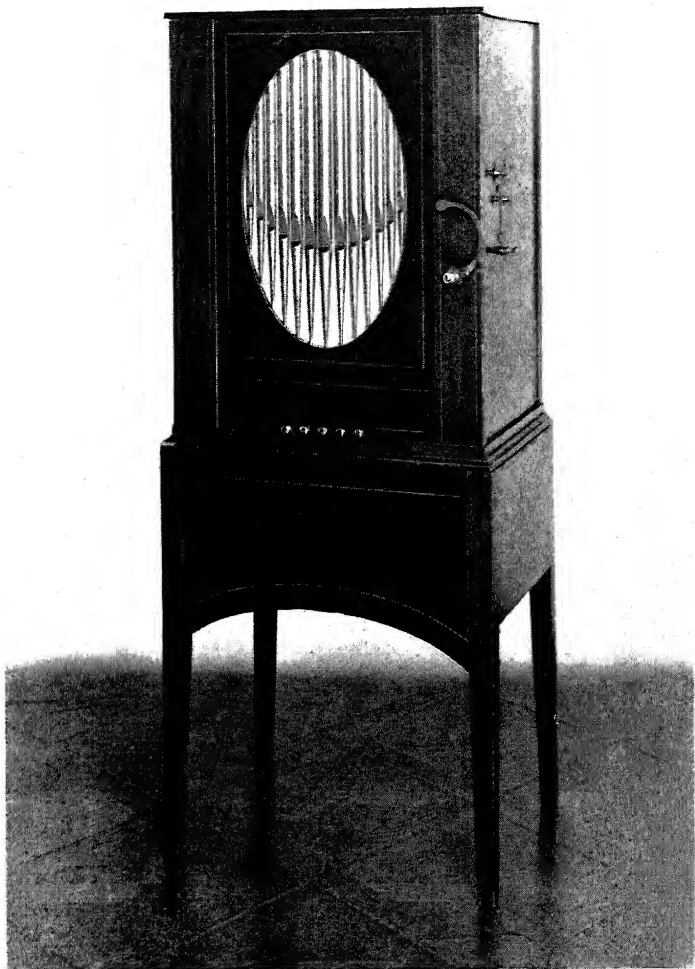
cheaper, although the actual performance is equal to, and in some cases better than, the more expensive ones. Better-class singing-birds, both in cages and in snuff-boxes are still being made in France and Switzerland. Cases are of gold, silver, tortoise-shell and hammered brass. They are expensive.

With few exceptions, the more modern mechanical singing-birds do not move the neck, and some do not even move the wings.

It is thought that these mechanical singing-birds were first invented by a Swiss watchmaker, one Pierre Jaquet-Droz, who was born at La Chaux de Fonds, Switzerland, 28th July, 1721. His parents, it would seem, were wealthy peasants, and, as the boy showed an early disposition for study, they intended him for the Church, and sent him to study theology at Neuchatel before he was twelve years old. The boy's sister had married a watchmaker, and while on holiday at the sister's house, young Peter became interested in mechanics, with the expected result that he spent a deal of his time in the watchmaker's workshop. In due course he developed such a wonderful talent for this kind of work, and by diligent industry acquired great skill, so much so, in fact, that he was induced to forsake theology, and seriously study watchmaking. This young Peter did, and afterwards became very skilful at his trade.

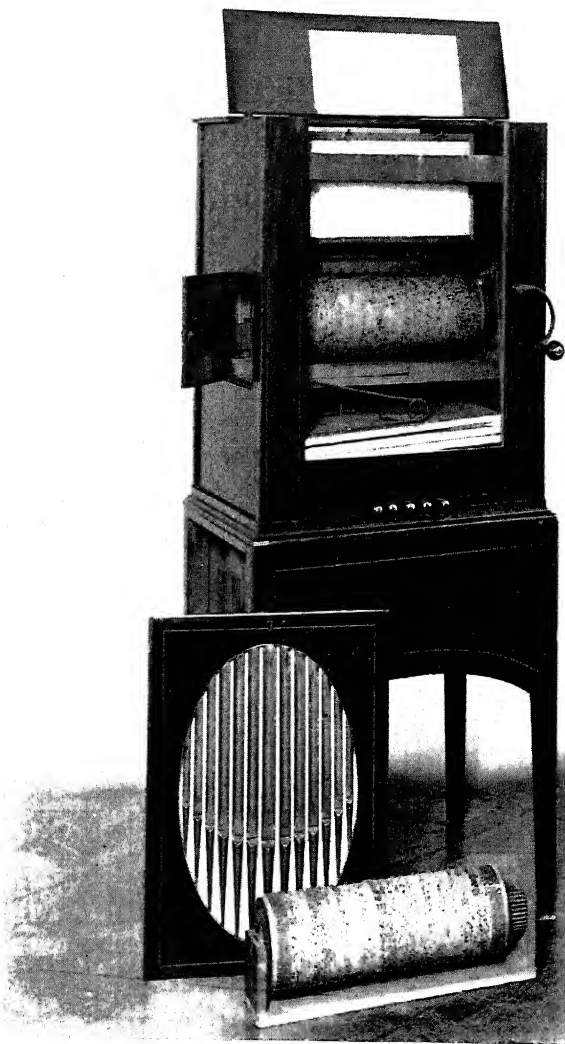
In about 1752 he produced his first mechanical singing-bird ; this he had fitted into a gold snuff-box in such a way that the bird would spring up out of the box, and perform when the box was opened. From this time his fame as a mechanic increased greatly, so much so that he was summoned by the King of Spain in 1758. He had made watches for the King, and now he proceeded to make such wonderful automata that he eventually became in danger of being condemned by the Santa Inquisition, as a *Sorcier*. On the death of the King of Spain, Pierre Jaquet-Droz returned to La Chaux de Fonds. This was in 1759. He had married in 1752, and in 1767 he sent his son Henri Louis Jaquet-Droz to France to study mathematics at the University of Nancy, where he stayed for three years. Upon the return of this son, Peter took him into partnership. This appears to have been a very successful partnership, and as a result the father and son produced more wonderful instruments.

Later, with the assistance of one Leschot Maillardet (an expert mechanic at this period) and Jean Pierre Droz (who at one time



Eighteenth century barrel-organ. Maker unknown. Three interchangeable barrels. Ten tunes on each, mostly Scottish. Three sets of pipes. Drum and bell accompaniment. Five stops in all.

Louis Martineau Collection.



Interior view of eighteenth century barrel organ.

was Director of the Paris Mint), Henri Louis Jaquet-Droz invented and brought to perfection the most marvellous automata that have ever been produced. Their skill and workmanship became world-famous.

Among the automata they produced are *The Designer*, *The Young Writer* and *The Clavecin Player*. These truly wonderful mechanical figures may still be seen, in perfect working order, in the museum at Neuchatel. *The Clavecin (Harpsichord) Player* will play a minuet in a very life-like manner, and is entirely and absolutely mechanical. This machine alone must have taken the partners many months—maybe even years—to complete. *The Young Writer*, seated at a desk, will write a letter of fifty words or so. *The Designer* (or as it is sometimes called, *The Artist*) is perhaps the most marvellous machine of all, and has been at various times exhibited and commented upon in all parts of the civilised world, as the most wonderful mechanical apparatus ever constructed. When, in 1774, Henry Louis Jaquet-Droz visited Paris he was received by King Louis XVI and Queen Marie Antoinette. They were deeply interested in *The Designer*, and watched its performance over and over again. This machine, when set in motion, made a portrait of the Queen on what was at first a blank sheet of paper that had been set before the miniature mechanical artist. The whole figure is less than half life-size.

From Paris Jaquet-Droz came to England and was received by George III. He settled for a time in England, and opened a workshop in London, where he proceeded to make a number of singing-bird snuff-boxes, and also finely-made, complicated watches. These products were to become famous the world over, and are to-day much sought by collectors. Peter Jaquet-Droz died 28th November, 1790. His son Henri Louis died in Naples 15th November, 1791, aged 39.

Another famous maker of mechanical birds was Charles Bruguier of Geneva. Bruguier le Père was born about 1750. His two sons Jacques and Charles both eventually followed their father's trade; thus we find singing-bird snuff-boxes bearing the name Bruguier over a long period. It is now indiscoverable when the first son Jacques was born, or the date of his death, but the second son, Charles Abraham Bruguier, was born in 1788 and died in 1862. His brother and his son continued in business until 1886, when, upon the death of the son,

the business closed down. The singing-bird boxes made by the three Bruguier were all of first-class workmanship. The cases are always very elaborate, and are in both silver and gold, and at times richly enamelled. Many of them were also inlaid with precious and semi-precious stones. The mechanical movements all bear the full name of the respective maker.

Bruguier le Père had died in 1830. Contemporary with him was one Bruguier du Grand Pre, also a maker of automatic singing-birds; this man had flourished from about 1750 until 1827. He made somewhat smaller snuff-boxes than did Bruguier the father, and these are now much favoured by collectors, generally on that account. He was a native of Geneva.

Another family that seem to have specialised in the production of singing-bird boxes, and also of very small musical boxes, were the Rochats. Head of this family was Pierre Rochat, who was born in 1780. He and his two sons—Ami Napoleon Rochat and Louis Rochat—lived at Chez Meillau, near Brassus, Vallee de Joux, Switzerland. Principally they made small musical boxes at first, but in 1815 they went to Geneva, and started to make singing-bird snuff-boxes and other small automata. Previously Pierre Rochat had worked for Jaquet-Droz. In due course, Ami Napoleon Rochat specialised in the manufacture of singing-bird snuff-boxes, and his products became famous.

The second son—Louis Rochet—became even more noteworthy as a mechanic than Ami-Napoleon in that he made such small and complicated instruments, that it is safe to assert that nothing to equal his work has been produced either before or since. He made singing-bird watches and very small gold snuff-boxes that contained not only a singing-bird but also a tiny musical box movement. He also made singing-bird pistols. This Louis Rochat also made very elaborate clocks, and in 1829 was awarded a special diploma and made a member of the Watchmakers' Society of Geneva.

Another maker of singing-bird boxes was Lami of Geneva (not to be confused with Lamy of Paris). Lami was born in 1810 and died in 1902. His workmanship was excellent, but it is sometimes difficult to distinguish, as he never marked his work.

Another family of singing-bird box makers were the Maillardets—Jean David Maillardet and Auguste Maillardet. These men produced many nice and interesting items at a later period, that is, after they had been in partnership with Jaquet-Droz. Few

only of their works are marked or numbered. Of the old makers it is only the Bruguiers that marked their products with their full name, and also with a number indicating the date. Not many of the other makers numbered or marked their pieces.

Besides singing-birds the Maillardets also made automata depicting various performers, acrobats, magicians, etc. The magician was perhaps the most popular, at least we gather so, because more of this type of machine was made than any other.

The magician was the figure of a man standing at a table ; sometimes this figure would be under a glass shade, at other times it would be placed on the top of a mantel clock, and made so as to perform every hour, or at certain hours. Various tricks would be performed, objects would appear and disappear or change, while under a cup held in the hands of the figure. There were many variations of this performer, a monkey would be modelled in a very life-like manner, and would be holding a tray, upon which would appear various articles.

The works of the Maillardets have been many times imitated at subsequent times, but never quite up to the originators' standard, and they were never at any time improved upon.

At a much later period came the firm of Le Roy of Paris, who also made clocks, singing-birds and other automata. Le Roy is easily the best maker of the more modern mechanical works of this description.

Both the ancient and the modern workers also made full-size birds in cages, sometimes two or more birds in a cage. In the early specimens the bird notes were produced by means of tiny pipes—similar to small organ pipes—but later a better effect was produced by a single whistle with a variable valve or plunger ; a much larger number of notes can be produced by this means, of which full advantage was taken by the skilful workers.

All the old singing-bird snuff-boxes were on the fusee and chain principle. The old movements contained over 1,000 separate parts, but not nearly so many in the full-size birds in cages.

CHAPTER VI

Various types of Musical Box

FORTE-PIANO

The first of the improvements or embellishments was known as the *forte-piano* musical box. This was introduced by Nicole Frères some time before 1840, and afterwards taken up by several other makers. The *forte-piano* was a combination of two combs, the combs being set side-by-side. The larger one was usually on the left, and had the lead resonators under two-thirds of the teeth. The short or *piano* comb had small resonators, or at times none at all. Thus, it will be understood that the large comb produced loud music, while only soft notes were played by the short comb ; some very pleasing effects were produced. The programme usually consisted of selections that were best suited to a combination of pianoforte music.

MANDOLINE

This came in 1845, usually fine combs were used, having eight or ten notes of the same tone or pitch, particularly in the middle and top end—treble—of the comb. A mandoline effect is produced by repeating a dominant note a number of times. Some of the small movements—two or three air with 3-inch barrel—by Heller or others, had mandoline combs.

PICCOLO

This came much later ; it had two combs, the short comb very high-pitched and loud. Unless this comb is skillfully adjusted it is apt to be too loud, and the scream of it is heard above the melody played by the large comb. Nevertheless, when in good order the *Piccolo* musical box is very pleasing.

FLUTINA OR REED-ORGAN ACCOMPANIMENT

This was introduced about 1850. The reed-organs were only made by three firms, but they supplied the other makers for use in their musical boxes. The reed-organ accompaniment is a matter of personal taste. Generally speaking, it is not very popular to-day, and there were few made that had any claims to success. In some of the cheaper ones, the organ had only seventeen notes, whilst some of the larger organ accompaniment boxes had forty notes. Nicole did not make their own reed-organs, but some of their organ boxes are good. Paillards made a few with organ notes only. On some of the large table-models with interchangeable cylinders there is fitted a tiny keyboard outside the case, and by this means the listener can play an accompaniment if desired to the automatic music. Nicole and Heller made the best organ accompaniment boxes.

ZITHER OR HARP

This is a cylinder of tissue, thin paper or silk, held down lightly on the comb ; it can be removed at will by pressing a lever. The effect it produced is supposed to represent a zither or harp. Only broad tooth or coarse combs are suitable. The thin combs sound rather tinny. A doubtful improvement at best, but very popular at one time.

SUBLIME HARMONY

This is a musical box with two or more complete combs of equal length, as distinct from two combs, one of which is merely a continuation of the other. This is said to be the invention of Amedee Paillard in 1870. Variations of the same principle were afterwards introduced by other firms, including Nicole and Mermod Frères. Usually one comb is tuned one octave higher than the other. The tuning has to be skilful, so that slight dissonance exists between the combs. Many variations of this tuning are possible. Thus, there are Sublime Harmony Piccolo musical boxes, in which both combs are of equal length and quite complete in themselves, but one is tuned to a high pitch, having fine, short teeth. The Sublime Harmony Tremolo had one comb made for *tremolo* effect—a number of teeth of the same pitch, and the repetition of a dominant note while the other comb played the air. In the Sublime Harmony Fortissimo two

identical combs were tuned to exactly the same pitch; this produced very loud music. A large number of Sublime Harmony musical boxes were made.

GRAND FORMAT

A very large musical box with cylinder 18-22-inches long and $4\frac{1}{2}$ -5-inches thick; very good if of good quality. Nicole made good ones, as also did Heller. Much larger "giant" musical boxes were made by Lecoultre.

TREMOLO

A *tremolo* effect was produced by tuning eight or more teeth of the comb to the same pitch. Kranz made a number of these, so also did Nicole and other firms.

DANCING DOLLS

Musical boxes with two or more little dancing dolls were produced about 1870. They were usually put in the cheaper pattern machine, but the firm of Mermod made some very large and elaborate ones; these had penny-in-slot arrangement. To-day musical boxes with dancing dolls are popular with collectors.

THREE COMBS—SUBLIME HARMONY

About 1880 Nicole introduced the three-comb box. These combs were all of equal length and the effect was good. Paillards also made a number. Some of the Nicole make had interchangeable cylinders. Produced good music.

QUATUOR

Musical box with four combs of equal length
(Sublime Harmony)

In 1840, one David Cadet, probably of Sainte Suzanne, France, introduced a large movement with a cylinder 12-inches long and having four laminated combs of equal length; these combs were made up of units of five, and the cylinder was set up to play three airs. It is uncertain how many of these movements were made, but it is unlikely that they were produced in large numbers. The effect was good, and the three overtures well rendered. Later,

1890 or thereabouts, Messrs. Mermod Frères and other firms made four-comb musical boxes. The cylinders were generally 22-inches long and played eight airs, with a very pleasing effect, but they were expensive, and not many were manufactured.

REVOLVER MUSICAL BOX

This was a type of interchangeable cylinder musical box, invented and patented by Amedee Paillard of St. Croix in 1870. Nicole also made a few. Six cylinders were mounted between two large wheels. When the large wheels were rotated any of the six cylinders were brought into action as required.

LA PIECE A OISEAU

Musical Box with mechanical singing bird

Nicole made these later, so did Dawkins. They had one or more small mechanical singing-birds, and these were sometimes to be seen through a small glass panel in the front of the case, seated in a small artificial garden. In some cases the birds are set at the back, and can only be seen through the inside glass lid. The birds move beak and wings, and turn from side to side. These are usually reed-organ boxes with a few bird notes added. Seldom very successful. Suitable for a nursery, or for a photographer's studio, to amuse children.

DRUM AND BELL

Also Drum, Bell and Castanet

This accompaniment is again a matter of personal taste. Only on the larger type instruments is it ever successful. However, between 1870 and 1890 large numbers of such boxes were made and sold. Some of the cheap pattern had only three bells. Those with six, eight or twelve bells, if by a good maker, can be very pleasing. The drum, bells and castanet can be cut out at will, each separately. Drum and bell boxes were popular in India and China.

FULL ORCHESTRA

Reed organ, Drum, Bells and Castanets

These boxes had two or more combs ; some of them were very elaborate, and nearly all had interchangeable cylinders. Nicole

made them with 22-inch cylinders, and some smaller ones. Here again competition was keen, and some cheap and nasty instruments were put on the market. These were never really successful as musical instruments.

TWO AND THREE TUNES PER TURN

During the enterprising period 1850-60, a novel type of musical box was made by Lecoultre, Bremond and others. This had a cylinder 20—22-inches long and $5\frac{1}{2}$ — $6\frac{1}{2}$ -inches thick. This would play three airs with one revolution, thus twenty-four airs would be played with eight revolutions of the cylinder. These were big, clumsy machines, and never very successful musically; their chief claim to popularity was the novelty of having three airs set up instead of one, for one revolution of the cylinder. Some of these machines had pretentious programmes. I have seen one that played parts one and two of Weber's overture to *Freischuetz*, to be followed by the Hunting Chorus from the same opera; this was followed by the music by Strauss, set to Adam's Ballet *Giselle*. The musical boxes that played two airs with one revolution of the cylinder were far more successful, and most of the Nicole make of this pattern are quite good if of the 1850-1870 period. These cylinders were usually 12—13-inches long and 4-inches thick, and would play twelve airs with six revolutions.

HARP EOLIENNE

This type of musical box was very similar to the *forte-piano*. Both combs were shorter and less flexible however, and both combs were loud, that is, they both had resonators. Not many of the Harp Eolienne musical boxes were made, and they are now seldom met with.

A. & H. ROWLEY, 120, Grays Inn Road.

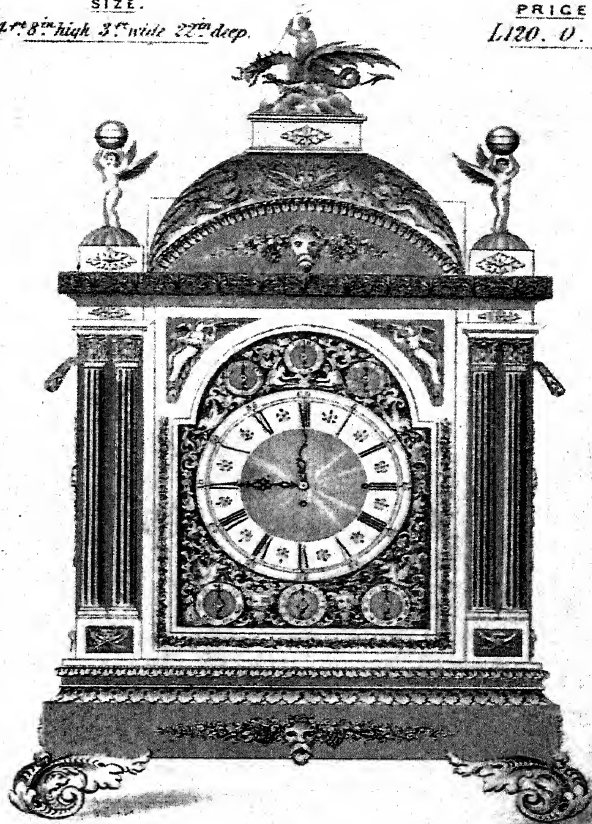
Nº9.

SIZE.

4^{ft} 8^{ins} high 3^{ft} wide 22^{ins} deep.

PRICE.

£120. 0. 0.



Musical calendar clock. Made by Rowley for the Indian market. It is called a bracket clock from its shape, but it was intended to be stood on a table or pedestal, as it measures 4 ft. 8 ins. high, 3 ft. wide and 22 ins. deep. The Nicole Frères four-overture musical box plays every three hours. Clock chimes on eight bells.

Illustration kindly lent by Messrs Rowley.

A Word to Collectors

AFTER NEARLY forty years experience as a repairer of musical boxes, the present writer is perhaps in a position to give a little advice on the collection and care of these instruments. It would, of course, be out of place, not so say difficult, to attempt to suggest what to collect, since personal taste must enter largely into the question. However, in common with most hobbies, it is generally found that the majority of serious collectors specialise, that is to say they are attracted by a particular type or make of musical box. There is plenty of scope in this direction. At the present time it is no longer possible to obtain new musical boxes of good quality that play up-to-date tunes, and a certain percentage of collectors are those with a fondness for classical music of an operatic character. Coupled with this is usually a taste for antiques, thus the richly-inlaid cases of some of the best quality musical boxes are sought, and at times it will be found that the fine case appeals to a collector as much as the music. The quaint and mellow rendering of old-time English, Scottish or Irish love ballads attracts another class of collector. The preference for this kind of music must have prompted some of the early makers to produce large number of medium-priced instruments that played these ever-popular airs.

The small musical boxes, usually known as musical snuff-boxes, seem to have attracted collectors over a long period. They form a branch in themselves, so to speak ; they embrace all the small type of musical movements such as were fitted into small cases. The early ones were in tin, and at times, wooden cases ; there were fine transparent amber tortoise-shell cases, and later a sort of pressed horn, and some kind of composition (usually black) and with various kinds of decorated lids such as embossed views or medallions. Many of the best tortoise-shell cases were gold mounted, and a few of the fine hand-made movements were put into gold and silver cases ; these cases are richly ornamented

as a rule, with chasing and enamel, and at times inlaid with precious stones.

These gold and silver cases are now more or less classed as rarities, that is, they are difficult to find, and at all times expensive to purchase. The actual shape of the gold cases took various forms. Some were round instead of the usual oblong pattern, and a number of them had moving figures and rolling ships—all worked in gold on the lid—which were set in motion when the music played. These last would be termed miniature musical automata. Such objects have always been rare. they were probably originally intended as noble gifts, particularly the gem-studded snuff-boxes, to noble friends or dignitaries. Many of these items are to-day only to be seen in museums, others are in private collections. However, all good-quality musical snuff-boxes are expensive if in order. The best makers of the early ones, as regards the movements, were Bordier, Kapt and Lecoultré. These flourished in the 1825-35 period. Some of the movements made before 1830 having laminated combs are of excellent workmanship. They played two airs. Those playing three and four airs are all of a later date, but if by a good maker were, nevertheless, excellent little instruments. The best later makers were Aubert, Heller and C. Friderich.

Reverting again to musical boxes of a larger size; the best music is produced by the medium and larger size instruments, made, broadly speaking, between the years 1840 and 1870. Many of these were in plain cases, or cases having little decoration in the way of inlay. I say broadly speaking, because a few very indifferent movements were made during the years mentioned, and also some very excellent ones made after 1870, particularly by the firms of Baker-Troll and Dawkins. However, the period is some guidance, because the best makers undoubtedly produced their finest work during the thirty years quoted.

Apart from the serial numbers, the names of the tunes it plays usually "dates" a musical box, and the serious collector will decide quickly just which period or style he will study most.

The best overture and oratorio musical boxes were the four and six air pattern of Nicole Frères make, and of these the best were produced before 1870; that is, they are of the serial numbers 35,000 to 38,000.

The best musical boxes playing operatic selections were the Nicole make of about 1840-60; serial numbers 27,000 to 38,000.

Paillard made their best around 1860-80, particularly their Sublime Harmony and three-comb musical boxes.

In the 1870 period the firm of J. Heller of Berne, produced some very elaborate and expensive musical boxes, some of them with reed-organ accompaniment and in very fine hand-carved cases.

A very good series of interchangeable cylinder musical boxes in various sizes, and many of them having two combs, were made by Baker-Troll in 1875-80.

Practically all the best makers of *forte-piano* musical boxes were the early key-wind pattern, usually by Nicole in the 24,000 series, and later down to 1870-75 by Paillard. These are now very popular among collectors, and possibly are the most sought after of all the larger type musical boxes.

Of course, other makers produced similar fine instruments: Lecoultre, Bremond, Du Commun, Girod, etc., but it is generally considered they are not up to the Nicole standard.

Messrs. Dawkins made a series of eight-air, two-comb—Piccolo—musical boxes at a later date, 1880-1900. Some of these had Gilbert and Sullivan programmes, and were really good-class instruments. This firm continued to make until 1914. At one time they made a number for the Indian market that played selections of Indian music; they also made a cheaper class of musical box, some of them in the form of stools with four legs, and small ottomans suitable for the nursery. I believe Dawkins were the last firm to produce the large-size interchangeable cylinder musical box, and this they did down to 1895. Many of these latter type were on large ornamental tables that were beautifully inlaid and finished. These to-day may be considered too ornate and too large, but musically they were good. Also for the nursery (and incidentally for the photographer's studio, to amuse difficult child sitters) Dawkins made some large and expensive musical boxes with drum and bells, and in addition two or sometimes more mechanical singing birds; these latter were in a little imitation garden situated behind the cylinder at the back of the case, and, of course, under the glass lid. A small reed-organ provided the bird notes, which were arranged in pinning the cylinder, so as to accompany the music. The birds moved their wings, beak and neck. So much for the cylinder musical boxes.

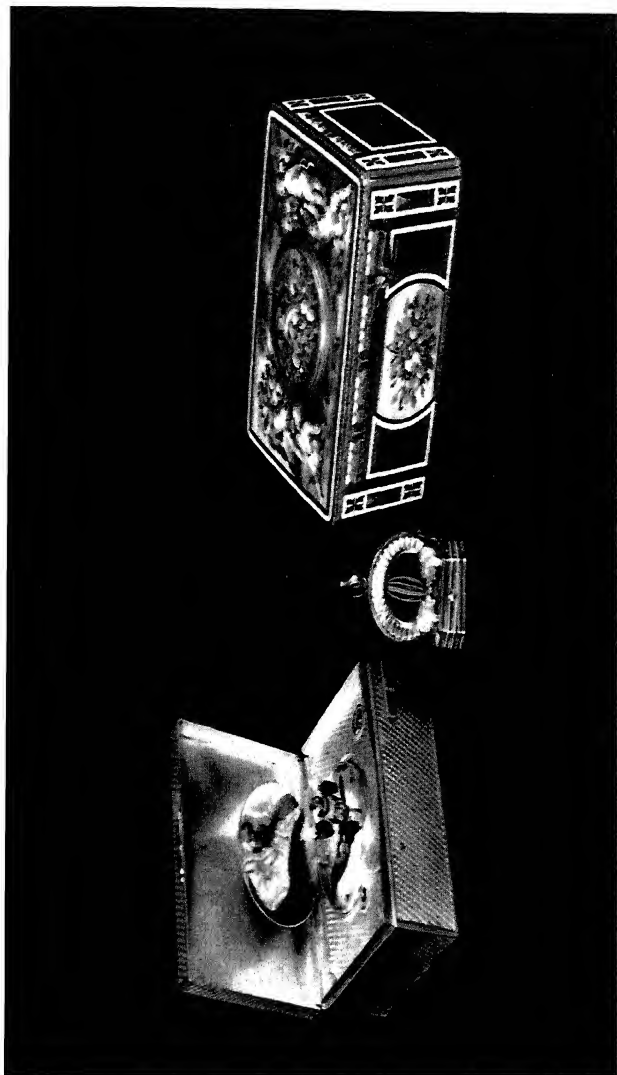
I will not comment on the disc type, because, apart from the size of the disc, they are mostly of the same two patterns :—table or upright, and produce music that is generally good and well-played according to the size of the disc. I find a collector usually likes a disc type of instrument or he does not, and therefore any description of the various sizes would not be of assistance, further they have been referred to earlier in this book.

When examining a cylinder type of musical box with a view to purchasing, first look at the pins on the cylinder. If the pins are badly damaged—bent over or flat—it is usually quite useless as a musical box unless the cylinder is entirely re-pinned, and this is an expensive job. In some of the later makes it will be found that if the pins are bent out of action they can, with care, be straightened, this is because a somewhat softer wire was used for the pins in after-years. If an early make, the pins are hard and brittle, in which case it is quite impossible to straighten them. Such instruments are best left alone, unless one is prepared to spend a lot of money on repairs.

The next item of importance is the comb. If the comb is very rusty, the removal of the rust will throw the comb out of tune. Dirt or oil on the comb will also make a difference to the tuning, but the dirt and oil can be removed. The most serious defect is broken teeth. Teeth can be replaced, that is cut in a comb, to the number of two or three, but if more are broken it is a difficult job to tune the new teeth unless one has the original scale. It is also important to examine a comb for broken points of the teeth ; at time these are not so easily detected. Points can be replaced, but if too many are broken it is again difficult to tune the comb after the repair. Further, if a comb is badly damaged, the cylinder is also sure to be ruined, because it is the stripping of the cylinder, usually through a run-down, that has damaged the comb.

If a musical box has been damaged so that the train will not run, in other words, the cylinder will not revolve, it is unwise to force it, as the spring is almost sure to be fully wound, and a little meddling may, and often does, result in the spring getting out of control, through the breaking of the endless screw in the train of wheels, and the cylinder running down swiftly and suddenly, this entirely ruining the comb and cylinder.

It often happens that there is nothing seriously wrong with a musical box except that the garnet end-stone or jewel is missing.



Two singing-bird boxes. One on left in silver gilt and gold case; also contains a musical box. On the right is a singing-bird box in silver and enamel case. Centre is musical fob seal in gold case.

David and Louis Martineau Collections.

In this case the train will not run, no matter how much pressure is put upon it. It is most dangerous to the musical box to tamper with it in this condition. Once the fault is detected it is a simple matter to have a new garnet fitted.

Upon all occasions when a spring is fully wound and the train will not run, it is a golden rule to remove the comb until the movement is put in order again.

The part of a musical box—large or small—that mostly needs attention is the endless screw of the escapement, and the little wheel that engages with it. The period during which this wheel and endless screw remain in order will depend, of course, upon the amount of use the instrument gets, and whether the user is careful or otherwise, but I have known cases where they have worked smoothly and perfectly without attention, except in oiling, for upwards of eighty years. The wheel in time gets worn, and the only remedy is a new one. If the wheel is forced or tampered with, it will deeply scratch the parts of the endless screw upon which it bears, thus ruining the endless screw as well as the wheel. If the scratches are not too deep they can be removed by polishing.

Care of a Musical Box

With the exercise of a little common sense a musical box can be kept in good order for many years. Usually the only essential attention a musical box requires is an occasional oiling. If not in constant use—few of them are—it will only require oiling once in a year or eighteen months, but it is very important that only the best clock oil is used. This is rather expensive, but a small bottle will last for years. Of course, for the spring and ratchets heavy oil can, and should, be used. The oil should never be squirted on or applied with a feather. The correct method is to have a small length of wire pushed in the cork of the oil bottle, the other end of the wire being hammered or filed flat. It is this flat end of the wire that is used to apply the oil. All bearings should be oiled; if in doubt a watchmaker will explain where the oil is needed. All pinions and cogs, and particularly the endless screw, should be oiled. Do not put too much oil on, only enough to make the pivots, pinions and cogs run smoothly. Too much oil is bad in more ways than one. Oil gathers dirt, and if cheap oil is used it will damage the pinions and wheels, also it is important to remember that if so much oil is applied that it runs down the plate or bracket it will, by capillary attraction, draw out every particle of oil from the bearing, and this in a short time. This being so, it is as well to wipe off any superfluous oil. Both pivots of the endless screw should be oiled, but do not remove the garnet end-stone to oil the top pivot, in case by so doing the bottom pivot comes out, and so lets the spring run down and ruin the movement. It is always as well to wait until the spring needs winding before removing the end-stone.

Do not leave a musical box half-way through a tune; when finished with, wind it just enough to allow it to end the tune. The reason for this is that if the box were tilted at any time with the cylinder part-way through a tune, the cylinder would slide on its spindle and be likely to damage the small dampers under

the points of the comb ; in this way also the pins on the cylinder are likely to knock points off the comb. Further, if a cylinder is left part-way through a tune, it is likely to damage the pins and to break off teeth from the comb.

It should be unnecessary to warn that the spring should never be left fully wound for any length of time. This puts an enormous strain on the wheels and bearings, and, should the spring break, it would damage the spring-drum, also the hook that holds the spring and the wheel on the spring drum. Musical box springs are very much more powerful than clock springs.

A warm dry room is best for a musical box, but actual heat should never be allowed to reach the cylinder, as it contains a wax that keeps the pins rigid, and should this wax or cement get out of place, the cylinder would no longer slide easily on the spindle.

Makers

Also included in this list are makers of mechanical singing birds

A

- Adank, Jaques. St. Croix, Switzerland.
Alibert, F. Geneva. Laminated comb musical boxes, with cylinders nine inches and more long. In the 1820 period.
Allard & Sandoz. Geneva.
Aubert, Daniel. St. Croix. 1879
Aubert & Sons. St. Croix. 1881.
Archambo, John. London. 1720-50. Maker of musical watches.
Aubert, A. In 1907 two Swiss musical box makers set up business in Clerkenwell Road, London, E.C., chiefly as repairers. These were Messrs. Jaccard & Aubert. Louis Jaccard had been with Paillard & Co., at St. Croix, and Aubert had worked for his father, a musical box maker. Jaccard had brought with him a barrel pricking machine and a large quantity of materials for repairs. Aubert was an expert at comb repairs, and it seems he stuck so close to his work in their Clerkenwell shop that he developed consumption, from which he died about 1910. Louis Jaccard continued in business as repairer and also a dealer in gramophones, and movements and springs, until his death in 1934. He was 69. He was burnt to death in his workshop.
Audemars, L. Geneva.
Alltez & Berguer. Geneva. 1840. Good-class musical boxes.

B

- Bernard, Joseph. Geneva. 1770-90.
Benoit. Geneva. 1805. Maker of singing birds.
Blanchard. Geneva. 1800. Maker of singing birds.
Baker, Geo. & Co., late Baker-Troll. Geneva. Had an agent in London. Maker of first-class musical boxes.
Ball, Beavon & Co., 31 Aldermanbury, London, E.C. Agents.

Bornand Frères. St. Croix. 1825.
 Bordier, A. Geneva. 1785. Very fine musical snuff-boxes.
 Bourquin, Gustave. St. Croix.
 Brachhausen, Gustav Adolph. Leipzig. Polyphon and Regina
 manufacturer.
 Bordier Frères. Geneva. 1815-30. Also Bordier, M. Geneva.
 1815-30.
 Bremond, B. A. Geneva. Good quality musical boxes, also
 Greiner & Bremond, Geneva. 1860.
 Bourquin, Arrigoni & Co. Paris. Musical boxes.
 Bendon, Geo. & Co., Charterhouse Street, London.
 Baud, Auguste. Auberson. 1870.
 Bontems. Paris. 1868. Singing birds.
 Beutner Kühn & Co. Aldermanbury, London. Agent. 1880.
 Beutner, Geo. Frederic. Aldermanbury, London. Agent. 1880.
 Billon-Haller, Jean. Geneva. 1880.
 Brugericia, C. London. 1820-24. Musical clocks and snuff-boxes.
 Bruguier, Chas. Abram. Geneva. 1788-1862. Singing birds.
 Charles Bruguier, the father, also made singing birds. He was
 born about 1750, died 1830.
 Bruguier, Jacques. 1868. Geneva. Singing birds.
 Breguet & Sons. Musical watches.

C

Cadet, David. Geneva. 1820. Made a four-comb musical box.
 Probably the first made with laminated combs.
 Capt, Henry Daniel, or Kapt. Geneva. 1802-11. Fine small
 movements.
 Cox, James. London. 1760-88. Musical clocks.
 Clay, Charles. Fenchurch Street, London. 1740. Musical
 clocks.
 Carpenter, William. London. 1770-1805. Musical clocks.
 Cuendet, Abraham Louis. Switzerland. 1810.
 Cuendet, John E. Auberson. 1870.
 Cuendet, Jules. St. Croix.
 Cuendet Frères. St. Croix. Also Emile L. Cuendet. 1893.
 Calame-Jaccard, P. St. Croix. 1890.

D

Du Commun Girod, Frederick William. Geneva. 1840-60.
 Maker of good-class musical boxes.

Dutertre, Auguste. Geneva. 1850.

Dawkins, Thomas & Co. Geneva. London agent in Charterhouse Street, E.C. These were modern makers of good-class musical boxes. They also made a few of the cheaper pattern. They made a large variety of patterns.

E

Ehrlich, Paul. Leipzig, Germany. Made Organettes and later Monopol disc musical box.

Excelsior musical box, made by Mojon Manger & Co.

Eppinger, Joachim. Augsburg. 1764, died 1771. Musical boxes.

Epars. St. Croix. Early small musical boxes.

F

Felder, Emil. Klingenthal, Germany.

Frisard, Jacob. Geneva. Lived in Bienne and London. Born 1753, died 1812. Singing bird maker.

Friderich, C. Small movements.

Froissard. Geneva. 1800. Musical watches.

Fournier. Paris. 1850. Singing birds.

G

Gagnaux, Louis. St. Croix. 1895.

Gay & Luguin. Geneva. 1850.

Gueissaz, Andre. St. Croix. 1890. Musical boxes.

Golay, Louis. Le Chenit. 1800. Musical boxes and singing birds.

Gneissuz, Fils & Co. Auberson.

Grandjean, David Henri. Le Loche. 1744, died 1845. Watches and singing birds.

Greiner & Bremond. Geneva. 1860. Large musical boxes.

H

Heller, J. H. Berne. 1870. Maker of good-class musical boxes and reed-organ accompaniment boxes, also snuff-box movements.

Hirsch, Emile & Co. Hatton Garden, London. 1880. Agents for Swiss musical boxes.

Howell, James & Co., 5, 7 & 9 Regent St., London. Agents. 1870.

Humbert Frères. Geneva. 1794. In 1800 made singing birds.

Henriot. Geneva. 1850.

I

- Ingold, Pierre Frederic. Paris, London. Born 1787, died 1878. Singing birds.
- Imhof & Mukle. New Oxford Street, London. Factory in the Black Forest, Germany. Makers of automatic organs and Orchestrions, and agents for various makes of musical boxes. They were also selling agents for Polyphons, being supplied with Polyphons and Reginas by Messrs. Henry Klein & Co., of Wardour Street, W.

J

- Jacques, Louis & Son. Brassus. Large musical boxes. 1850.
- Janod, Felix. St. Croix.
- Jaccard, Alexis. St. Croix.
- Jaccard, L. G. Wrote manuscript, *Origin and Development of Musical Boxes*, in Edison Institute, Dearborn, Michigan. Published *Hobbies Magazine*. Chicago. 1938.
- Jaccard, Louis & Aubert. London. 1907. See under Aubert.
- Jaccard, Jules. St. Croix. 1890.
- Jaccard Frères. St. Croix. 1850. Four-overture boxes and others.
- Jaccard, Walter. St. Croix.
- Jaccard, Edouard. St. Croix.
- Jaquet-Droz, Peter. Maker of singing birds. Had workshop in London for a time. Born 1721, died 1790.
- Jaquet-Droz, Henry Louis. Son of the above. Born 1752, died in Naples, 1791. Made clocks and singing-birds.
- Junod, Alfred. St. Croix. 1887. Maker of the Duplex musical box.
- Jeanrenand, Albert. St. Croix. 1870.

K

- Keith Prowse & Co. London. Agents for Swiss musical boxes.
- Kranz. Swiss maker of cheap musical boxes. 1870-80.
- Kaarer, Adolf. Kilm.
- Karras. German maker of cheap musical boxes. 1870-80.
- Keller, Alfred. St. Croix. 1900.
- Karrey, S. Teufenthal. 1860.
- Karrer, Rudolf. Teufenthal. 1881.
- Kapt. See Capt.

L

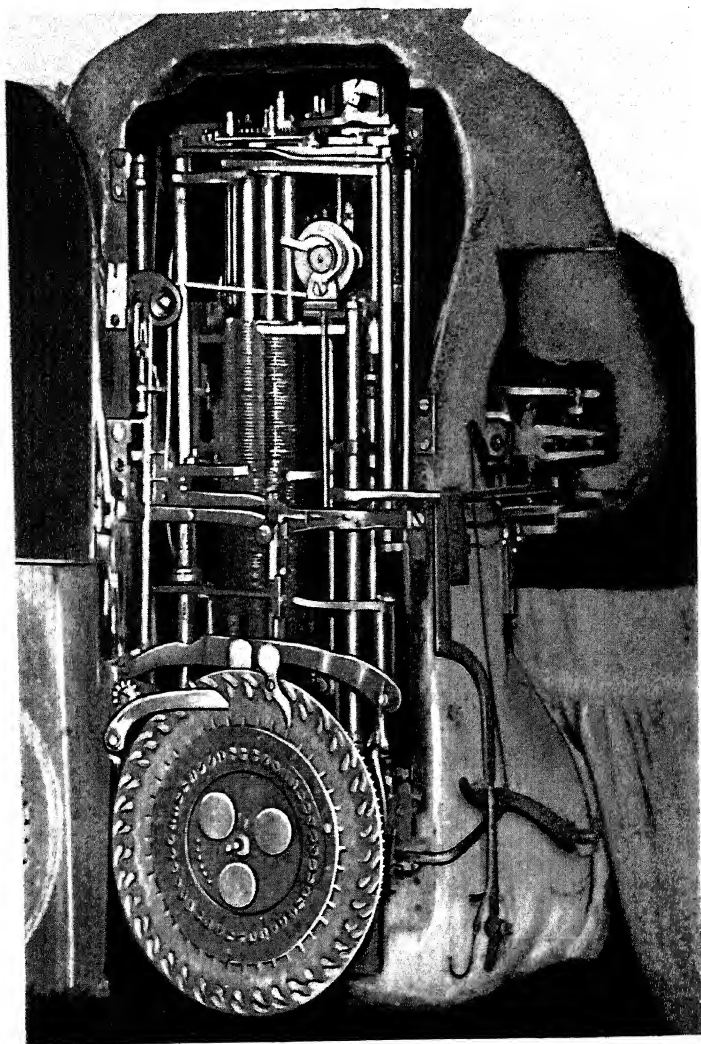
- Langdorf & Fils. Geneva. 1870. Made good-quality musical boxes.
- Laffleur & Son. London. 1880. Agent for French and Swiss musical boxes.
- Lami. Geneva. 1810-1902. Maker of mechanical singing-birds.
- Lange, Herman. London. 1880. Agent.
- Lateulere, Antoine Albert. French, but worked in London as a repairer, 1889. Agent for French musical boxes.
- Lecoultre, Louis, Geneva. Watchmaker. Early eighteenth century.
- Lecoultre, Frères. Geneva. Early eighteenth century. David is said to be the originator of the brass cylinder musical box. The firm made good-class musical boxes over a long period and they are still in business as watchmakers. In 1850 Lecoulter Frères were in business at Brassus, as also were D. Lecoultre & Son, Brassus, as watch and musical box makers.
- Langenbucher, Achilles. Augsburg. 1610. Automaton maker.
- Lemaire, Nicholas. Paris. Born 1757, died 1832. Pupil of Jaquet-Droz, and a maker of mechanical singing birds.
- Lador, Adrien. St. Croix. Switzerland.
- Leschot, Jean. Geneva. Born 1746, died 1824. Watchmaker. Made mechanical singing birds in 1791.
- Lochmann, Paul. Leipzig, Germany. Put first disc musical box on the market, 1885.
- L'Epee, Auguste. St. Suzanne, Doubs, France. 1839.
- Le Roy. Paris. 1850. Made musical boxes, musical clocks and automatons over a long period.

M

- Margot-Cuendet, A. Auberson.
- Mittendorf. Geneva.
- Mayer, Louis Henri. High Street, Marylebone. Agent. 1887.
- Millington, John James. Houndsditch, London. Agent. 1880.
- Manger, John & Co. Geneva. 1860. Afterwards in partnership with Mojon Montandon, and traded as Mojon, Manger & Co.
- Mojon Montandon & Co. 1860. Geneva. Afterwards Mojon, Manger & Co., with agency in London.
- Mojon, Manger & Co. Bartlett's Buildings, London, E.C.1. 1880. Makers of large-size musical boxes, some with dancing



"The Writer." An automaton made by Pierre Jaquet-Droz and his son Henri Louis, about 1773.



"The Writer," showing interior mechanism.

- dolls and with bells and drum. Penny-in-slot cylinder machines.
- Muller Brothers. Dean Street, Soho, London, also Geneva. 1860-1880.
- Mermod Frères. St. Croix. 1815-1889. Makers of musical boxes and of penny-in-slot cylinder machines, and later of the Stella disc musical box. Described in the 1851 Exhibition catalogue as high-class watchmakers.
- Maillardet, Henri. Fontaines and London. Born 1745. Worked in London 1784-92. Watchmaker. Made mechanical singing birds. Also Jean David Maillardet and Auguste Maillardet.
- Moolinie, Senior. Geneva. Made elaborate musical boxes. 1858.
- Mermod & Bormand, G. St. Croix.
- Meylan, Philippe Samuel. Geneva.
- Metert, Henri. Geneva. Worked as mechanic for Nicole Frères all his life. Started in the Geneva factory at the age of eleven. Afterwards came to London and worked for the firm, first in Hatton Garden, and then in Ely Place, until they gave up in 1895. Metert then, with two partners, carried on the business until his death in 1933. He was also a maker of mechanical singing birds, and once made a musical box playing all bells. He was a native of Geneva.
- Metert & Langdorf. Geneva. 1850.
- Morand, Antoine. Pout-de-Vaux. Born 1674, died 1757. Made musical automaton clock in Versailles.
- Morris, Tobias. Wapping, London. 1794. Made gilt automatic musical table-clock for India. Clock now in the Victoria and Albert Museum.
- Metert, Henri J. A. Geneva. 1879.

N

- Nicole Frères. Geneva. Established 1815, and afterwards world-famous as makers of good-quality musical boxes. They went out of business in 1895.
- Nordmann, Jules. Hatton Garden, London.

P

- Paillard. This firm were for many years in St. Croix. They made, at first, clocks and watches; Pierre, in 1722-35 and Paillard Frères 1735-1770. In 1814 E. Paillard & Co. founded the firm of musical box makers at St. Croix, afterwards known

- as Amedee Paillard, and C. Paillard & Co. for many years ; they became famous as the P.V.F. firm which they made their trade mark (Paillard, Vaucher, Fils). The firm made good-class and also a cheaper type of musical box over a long period, certainly from 1814 to 1914. They at one time had branches in Paris and New York. The firm are still in existence at St. Croix, but they now make gramophones, radio sets and metronomes.
- Paillard, Charles. St. Croix. 1875.
- Paillard, Amedee. St. Croix. 1870.
- Paillard, Pierre, Besancon. 1722-35. Made turret clocks and small clocks. A watch made by him is in the Besancon Museum.
- Paillard, Thomas. Rouen. 1786.
- Paillard, Antoine. Paris. 1776.
- Paillard, Thomas, Paris. 1786
- Paillard, Claude Antoine. Besancon. 1791.
- Paillard, Alfred E. St. Croix and New York, 1894.
- Paillard, Jean Jaques. Geneva. 1775-92.
- Paillard, M. J. & Co. New York. 1880-95.
- Paillard, M. L. & Co. New York. 1879.
- Paillard Frères. St. Croix. 1850.
- Piquet, Isaac Daniel. Geneva. 1775-1841. Musical box maker.
- Parr, Ellis. Inventor of disc musical box. He patented it in U.S.A., France, England, Belgium, Germany and Austria-Hungary. 1885-6.

R

- Reivenel. Geneva. 1885.
- Rochat, W. & Sons. Brassus. 1802-13. Makers of mechanical singing birds. Pierre Rochat the father, born 1780.
- Rochat, Les Frères. Geneva. 1810-25. Makers of singing birds. Signed F.R. in a circle. Made singing bird snuff-boxes.
- Rochat. Paris. 1825. Musical clocks.
- Reuge, Al. St. Croix. Musical boxes.
- Riveuc. Geneva.
- Recordon, Jeremie. St. Croix. 1815.
- Roepke & Co. Manchester.
- Robin, Robert. Paris. Born 1742, died 1799. Singing birds.
- Riessner, Paul. Leipzig. Polyphon maker. Co-partner with Gustav Brachhausen.

S

Silber & Fleming Ltd. London. Agents for Nicole Frères and other makers of musical boxes.
 Sandoz, Louis. Switzerland. 1818.
 Schwarz, Heinrich & Co. Berlin.
 Sueur, Alfred. St. Croix. 1886.

T

Thibouville-Lamy, Jerome & Co. London and Paris. Makers of French musical boxes.
 Thorens, Herman. St. Croix. Maker of small musical boxes, cylinder and disc type.
 Tritschter, John & Co., Oxford Street, London.
 Tuller, Eugene. St. Croix.
 Troll, S. Geneva. See also Baker-Troll. 1880-90.

U

Ullmann, Charles. Auberson. Maker of good-class musical boxes. 1870-1890. Agent, Hy. Gebhardt, New Broad Street, London.

V

Vaucanson, Jacques de. Grenoble and Paris. Born 1709, died 1782. Famous maker of automatic figures.
 Vernaz, Alexis. St. Croix. 1880-97.

W

Wales & McCulloch. Agents. Ludgate Hill and Cheapside, London.
 Wallis, Joseph, & Son. Euston Road, London. Agents for French and Swiss musical boxes.
 Willieumier et Amez-Droz. Geneva. Early nineteenth century.
 Wolff, Etienne Auguste. Geneva. 1775-91.

Z

Zumsteg, Henrich Kulm. Aargau. Musical box maker.

MAKERS WHO EXHIBITED IN THE GREAT EXHIBITION, HYDE PARK, 1851.

- Jaccard Brothers. St. Croix. Four-overture musical box. Also snuff-boxes playing two, three, four and six airs.
- Lecoultre, D. & Son. Brassus. Large musical box with two combs, playing three overtures.
- Lecoultre Brothers. Brassus. Musical box playing four overtures, with two keyboards. Also Musical pianoforte.
- Jacques, Louis & Son. St. Croix. Musical boxes playing eight airs with *forte-piano*, mandoline four airs, six airs with drum and cymbals, four airs with castanets and cymbals. Large size, four overtures with *forte-piano*, mandoline. Large size, four airs with *forte-piano*. Two small musical boxes, four airs. Two small, three airs. Six small, two airs. One, six airs with *forte-piano*.
- Du Commun-Girod, Fredrick William. Geneva. Musical boxes in carved cases and marquetry.
- Gay & Luquin. Geneva. Inventors. Complicated musical box imitating a military band, plays six modern tunes. The barrel is 19-inches long and 32.4-inches in diameter. It also contains harmonic notes, a drum, two castanets, twelve small bells and a large drum, which are not seen ; with carved box and moveable glasses.
- Metert & Langdorf. Geneva. Musical boxes playing six tunes, with bells and drum at pleasure ; ebony and black cases. Musical boxes playing four tunes, mandoline ; black case ; all with metallic incrustations.
- Dutertre, Augustus. Geneva. Gold walking-stick-head with mechanism.
- E. & A. Paillard Brothers. St. Croix. Mandoline musical box. Musical snuff-boxes playing two, three and four tunes.

MAKERS WHO EXHIBITED IN THE 1862 EXHIBITION.

- Greiner, T. & Bremond, B. Geneva.
- Imhof & Mukle. Germany and London.
- Nicole Frères. Geneva. Musical boxes, four to forty guineas.
- Muller Brothers. Geneva and London.
- Karrey, S. Teuffenthal. Argovie, Switzerland.
- Paillard, E. & A., Brothers. St. Croix.

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